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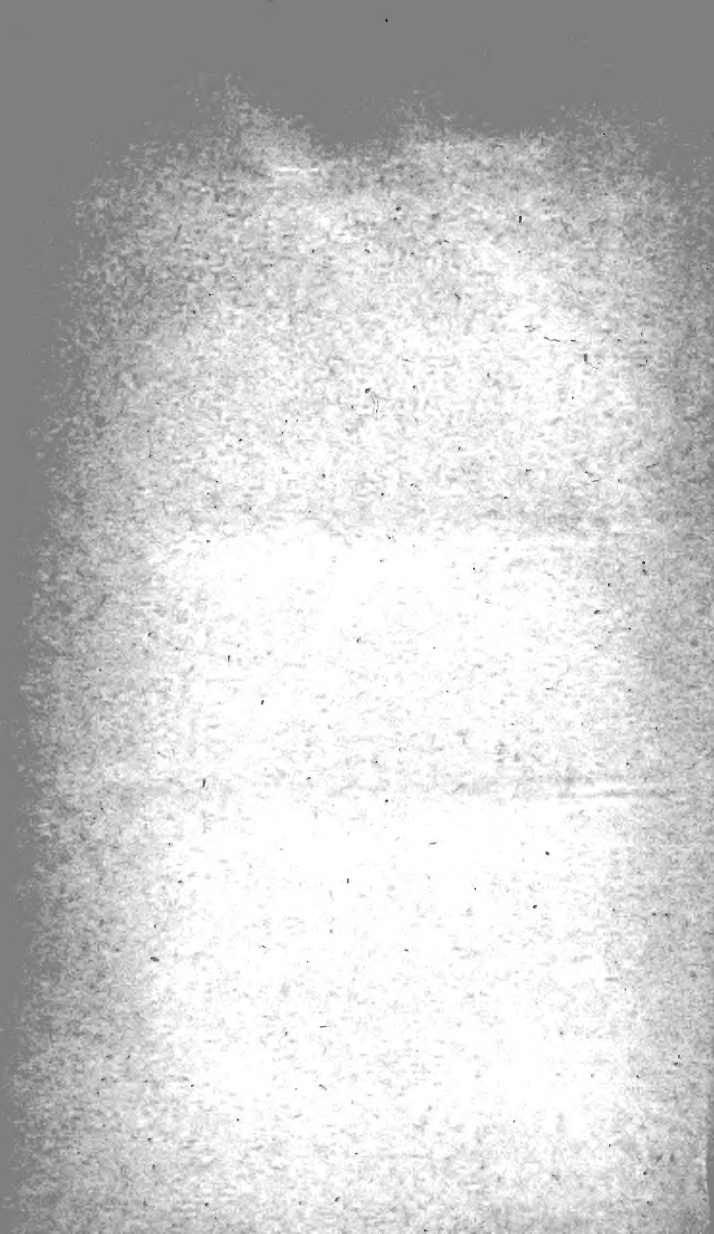
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# INSECTA BRITANNICA.

## LEPIDOPTERA:

### TINEINA.

BY

H. T. STAINTON.

LONDON:

LOVELL REEVE, HENRIETTA STREET, COVENT GARDEN.

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## P R E F A C E.

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THE object of this volume is to furnish descriptions of all the species of *TINEINA* (a group of *LEPIDOPTERA*) at present known to inhabit Great Britain, and at the same time to give as much information concerning their habits and transformations as the limited space would allow. Each species is carefully described from actual specimens, and each genus is founded on the microscopical investigation of all (or nearly all) the species comprised in it. In some few instances, to avoid a premature multiplication of genera, species are placed in a genus though not quite agreeing with its essential characters; in such cases care has been taken to point out wherein these differences consist, so that, should the further progress of the science require the creation of new genera, this will be facilitated by the details here given. The habits noticed are in most instances the result of personal research, although advantage has been taken of the observations of others where there was no doubt to what species they were intended to apply. The transformations of the species, from their great variety, offer an endless field of amusement; and my object being to give full but concise details, general observations thereon are placed at the commencement of each genus. In every case where no observations occur concerning the larva of a species, it must be understood that we are still unacquainted with it. As a rule,

no descriptions of larvæ are introduced, as the space would not permit it. With reference to the synonymy, the works of the principal writers were carefully gone over, and the descriptions identified with known species, or set aside as undistinguishable. The synonymy of the species described in this volume is given more fully in the Catalogue of British Micro-Lepidoptera (*Tineina*), which I have been conducting through the press, for the Trustees of the British Museum, simultaneously with this volume; but neither did that Catalogue, any more than the present volume, admit of the introduction of critical disquisitions on the synonymy of the species.

To have gone minutely and critically into the synonymy, to have described the larva of each species and its entire habits in detail, would have completely altered the design of this work; but I purpose at no distant date, in conjunction with others, to edit a more detailed and voluminous work, 'The Natural History of the *Tineina*.'

To avoid misconception, it is however necessary to remark that the present volume does not—cannot contain descriptions of *all* the British *Tineina*; the number of these is increasing upon us daily; all that has therefore been accomplished has been to describe *all the known and distinguished* species: the latter expression is used advisedly, for it frequently happens that a so-called new species is not really new, having lain dormant in our collections for years, but mixed with some other species, from which we have only at length learnt to distinguish it. Consequently, in addition to the new species that will be met with in the course of a few years, it may be also found that many of the species of this volume are little groups of species, which further investigations will enable us to separate; and as the transformations of many species not now known to us will be discovered, this volume will gradually fall in arrear of the progressive science, and a new edition will become requisite.

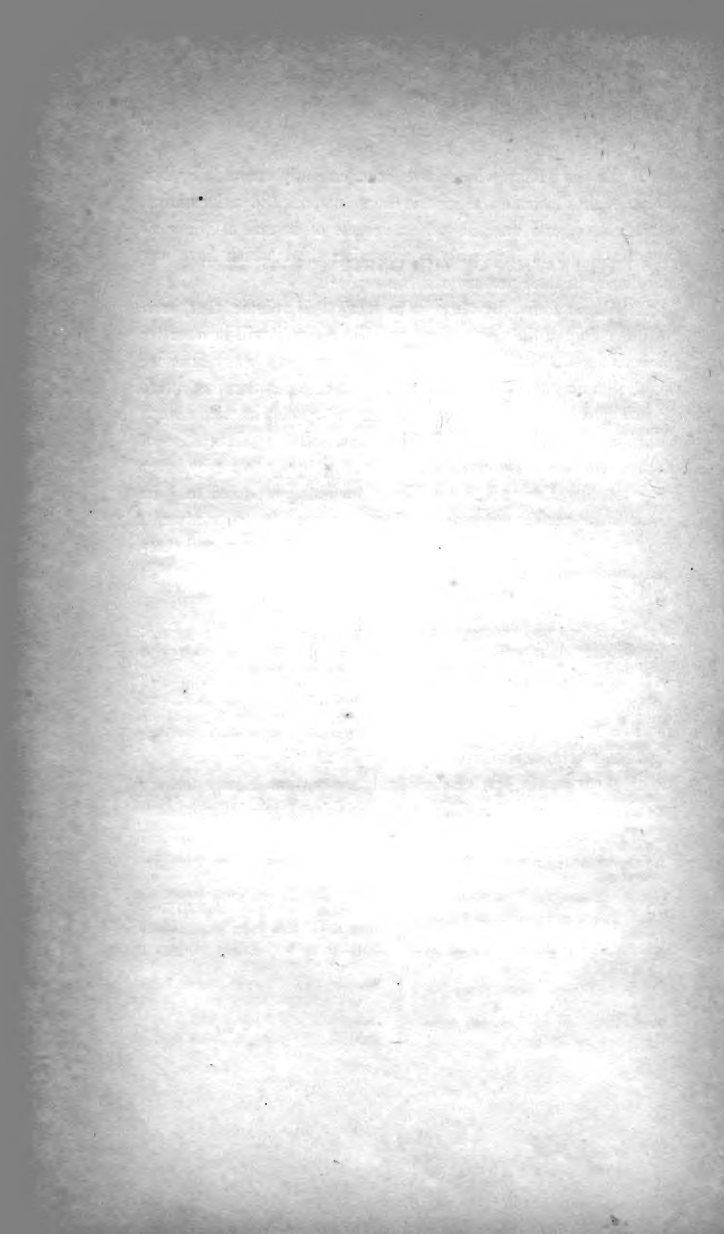
Of the ten plates, which have been carefully executed by Mr. Wing, eight illustrate the generic characters, one the various forms of the larvæ, and one the perfect insects of several of the most important genera (especially representing those which have any peculiarity in their posture when in repose).

It will be found by those who *study* this volume, that, even with the help of the descriptions and the plates, it will be a matter of considerable difficulty to name with certainty many species; those who do not associate with other entomologists are not aware to how great an extent the comparison of specimens with named collections is carried. To all who meet with any difficulties of this nature I offer my services; and if they apply to me by letter or personally, their wants shall be immediately attended to. In order to be readily accessible without any previous appointment, I have followed the example of the late Mr. Stephens, and "my collections are thrown open for inspection, etc., every Wednesday evening, to any gentleman, upon the presentation of his card."

In concluding the labour of my leisure hours of three successive winters, I have to express my sincere thanks to all those who have assisted me, either by the loan of specimens (frequently unique), by the communication of original observations, or in the more laborious operations of denuding wings, preliminarily investigating genera, or reviewing the descriptions of species: assistance on all these points has been so freely given, that I have felt my position more that of an Editor, taking advantage of the labours of others, than that of an Author; yet, at the same time, for all the errors and imperfections of this book I am solely responsible.

H. T. STAINTON.

*Mountsfield, Lewisham, July 1st, 1854.*



# EXPLANATION OF THE CONTRACTIONS IN THE REFERENCES.

- Bjerk. N. A. II.—Bjerkander, *Nova Acta Holmiæ*.
- Bouché, Natur.—Bouché, *Naturgeschichte der Insekten*.
- Cl. I.—Clerck, *Icones Insectorum rariorum*.
- Curt. B. E.—Curtis, *British Entomology*.
- Don. B. I.—Donovan, *Natural History of British Insects*.
- Dougl. Ent. Trans.; Zool.—Douglas, *Transactions of the Entomological Society of London; Zoologist*.
- Dup. Cat.—Duponchel, *Catalogue des Lépidoptères de France*.
- Dup. L. F. xi.; Sup. iv.—Duponchel, *Lépidoptères de France*, vol. xi.; and *Supplement*, vol. iv.
- Edl.—Edleston.
- Evers.—Eversmann, *Fauna Lepidopterologica Volgo-Uralensis*.
- Fab. S. E.; G. I.; S. I.; Man.; E. S.; E. S. Sup.—Fabricius, *Systema Entomologiæ; Genera Insectorum; Species Insectorum; Mantissa Insectorum; Entomologia Systematica; Entomologiæ Systematicæ Supplementum*.
- F. v. R.—Fischer von Röslerstamm.
- Four.—Fourcroy, *Entomologia Parisiensis*.
- Frey, N. B.—Freyer, *Neue Beiträge zur Schmetterlingskunde*.
- Godart. — Godart, *Lépidoptères de France*, vol. v.
- Goeze, E. B.—Goeze, *Entomologische Beiträge*, vol. iii. part 4.
- Guenée.—Guenée, *Index Methodicus Micro-Lepidopterorum Europæorum*.
- Haw. L. B.—Haworth, *Lepidoptera Britannica*.
- H.-S.—Herrich-Schäffer, *Systematische Bearbeitung der Schmetterlinge von Europa*.
- Hüb. Tin.; V.—Hübner, *Sammlung Europäischer Schmetterlinge; Verzeichniß bekannter Schmetterlinge*.
- Hummel, Ess. Ent.—Hummel, *Essais Entomologiques*.
- Hump. et West. B. M.—Humphreys and Westwood, *British Moths*, vol. ii.
- Kollar, Verz. der nied. ost. Schm.—Kollar, *Verzeichniß der niederösterreichischen Schmetterlinge*.
- Lat. G. C. et I.; II. N.; R. A.—Latreille, *Genera Crustaceorum et Insectorum; Histoire Naturelle des Crustacés et des Insectes; le Règne Animal*.
- Lewis, Ent. Mag.—Lewis, *Entomological Magazine*.
- Lin. F. S.; S. N.—Linnaeus, *Fauna Suecica; Systema Naturæ*.
- N. A. II.—*Nova Acta Holmiæ*.
- Och.—Ochsenheimer, *die Schmetterlinge von Europa*.
- Panz. I. G.—Panzer, *Fauna Insectorum Germaniæ*.
- Ratz. F. I.—Ratzeburg, *Forst Insecten*.
- Retz. G. et S.—Retzius, *Genera et Species Insectorum*.
- Roemer, G. I.—Roemer, *Genera Insectorum Linnei et Fabricii*.
- Rossi.—Rossi, *Fauna Etrusca*.
- Schr. F. B.—Schränk, *Fauna Boica*.

- Scriba, Beit.—Scriba, Beiträge zu der Insekten Geschichte.
- Scop. E. C.—Scopoli, Entomologia Carniolica.
- Sta. Cat.; Sup. Cat.; Ent. Trans.; Zool.—Stainton, Catalogue of British Tineidæ and Pterophoridæ; Supplementary Catalogue of British Tineidæ and Pterophoridæ; Transactions of the Entomological Society of London; Zoologist.
- Step. H.; Entom.—Stephens' Illustrations of British Entomology, Haustella, vol. iv.; Entomologist.
- Tengst. F. F.-F.—Tengström, Bidrag till Finlands Fjaril-Fauna.
- Thun. I. S.; M. N. A. U.—Thunberg, Insecta Suecica; Museum Naturæ Academiæ Upsaliensis.
- Treit. E. S.—Treitschke, die Schmetterlinge von Europa.
- Vill. E. L.—Villers, Entomologia Faunæ Suecicæ descriptionibus aucta, Caroli Linnæi.
- W. V.—Systematisches Verzeichniss der Schmetterlinge der Wienergegend.
- Zell. Isis; L. E.; Ent. Ztg.—Zeller, Isis von Oken; Linnaea Entomologica; Entomologische Zeitung.
- Zett. I. L.—Zetterstedt, Insecta Lapponica.
- Z. g. S.—Zincken, genannt Sommer.



# INSECTA BRITANNICA.

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## LEPIDOPTERA.

*Alæ quatuor, squamis imbricatæ.*

*Os haustellum maxillis coherentibus compositum.*

*Larva pedibus ad summum 16 instructa.*

*Metamorphosis perfecta.*

### *Synonyma.*

*Lepidoptera*, Linnæi, 1753, De Geer, aliorumque auctorum.

*Glossata*, Fabricii, 1775.

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*Wings four, clothed with scales\**, which are inserted on both sides of the membrane; *mouth a tubular tongue† composed of the united maxillæ* protected on each side by the palpi‡. *The larva furnished at the most with sixteen legs, rarely with less than ten. Metamorphosis complete, i. e. the larva changes to a quiescent masked pupa, which differs both from the larva and from the imago.*

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None of the insects of this order are liable to be mistaken for any other, but several of the *Trichoptera* approximate so closely to the *Lepidoptera*, that it is with the greatest difficulty they can

\* Some species of the *Psychidæ* have all the wings clothed with hairs, and in some species of *Incurvaria*, *Lampronia*, *Micropteryx*, and *Nepticula* the posterior wings are furnished with hairs instead of scales. The females of *Heterogyius*, *Psyche*, and *Talæporia*, etc., are entirely destitute of wings.

† In some of the *Psychidæ*, and in *Agllossa*, the tongue is absent.

‡ The palpi are sometimes wanting, e.g. *Bucculatrix* and some of the *Psychidæ*.

be distinguished; and *Acantropus* has been placed in this order by Westwood (Intro. to Mod. Classif. of Insects, vol. ii. p. 412), and by Kolenati (Genera et Species Trichopterorum, p. 6), who had himself taken forty specimens of the insect: it is possible that future investigation, and the discovery of the primary states of this insect, may show that their views of its affinities are well founded. The Homopterous *Aleyrodes proletella* was described by Linnæus as a *Tinea*, but the resemblance of the perfect insect is very superficial. The resemblance of the Dipterous genus *Psychoda* would appear to mislead some entomologists, Professor Zeller having had specimens sent him to name as species of the *Psychidæ*.

The two main divisions of the *Lepidoptera* are:—

- I. With the apex of the antennæ thickened . . RHOPALOCERA.
- II. With the apex of the antennæ not thickened HETEROCERA.

### I. RHOPALOCERA, *Duméril, Boisduval*.

*Diurna, Latreille.*

*Antennæ apice incrassato, articulis mediis elongatis.*

*Alæ in quiete erectæ, posteriores sine retinaculo.*

*Prothorax sine collari.*

*Antennæ with the apex incrassated* (a few exceptions occur among the *Morphidæ*); *the middle joints elongated. Wings in repose erect* (*Hesperia malvarum* and *Tages* sleep with the wings decumbent); *the posterior without a bristle. Prothorax without a collar* (in the *Hesperidæ* there is a slight development of a collar).

### II. HETEROCERA, *Boisduval*.

*Antennæ setaceæ vel fusiformes, apice attenuato.*

*Alæ in quiete planæ, posteriores cum retinaculo vel sine eo.*

*Prothorax collari tectus.*

*Antennæ setaceous, or fusiform with the apex attenuated* (*Castnia* forms an exception, and was therefore placed by early writers among the diurnal *Lepidoptera*; the development of the collar, and the bristle of the posterior wing, show that it belongs to the *Heterocera*); *wings in*

*repose flat* (a few *Geometridæ*, e. g. *Piniaria*, *Illustraria*, *Zebraria*, etc., sleep with the wings erect); *posterior wings generally furnished with a bristle*, if it be wanting the form of the costa\* is sufficient to distinguish the insect from *Rhopalocera*; *the prothorax covered by a collar*.

Of the *Heterocera* there are nine groups, which are thus divided:—

- |  |                  |
|--|------------------|
| A. Antennæ fusiform . . . . .  | 1. SPHINGINA.    |
| A A. Antennæ setaceous.  |                  |
| B. Wings undivided.  |                  |
| C. Wings with short cilia.   |                  |
| D. Wings ample, the posterior gaily coloured, or more so than the anterior wings.                            |                  |
| E. Body thick, rather short, and posteriorly obtuse; posterior legs hardly longer than the middle pair . . . | 2. BOMBYCINA.    |
| E E. Body slender; posterior legs considerably longer than the middle pair . . . . .                         | 4. GEOMETRINA.   |
| D D. Wings moderate; the posterior of dingy colours. Body moderate, posteriorly attenuated . . . . .         | 3. NOCTUINA.     |
| D D D. Wings rather long, triangular. Body slender, elongate . . . . .                                       | 5. PYRALIDINA.   |
| D D D. Wings broad, the anterior subtruncate; the costa at the base suddenly convex . . . . .                | 6. TORTRICINA.   |
| C C. Wings with long or very long cilia. Wings elongate; body slender . . .                                  | 7. TINEINA.      |
| B B. Wings divided.  |                  |
| F. Anterior wings bifid; posterior trifid . . .  | 8. PTEROPHORINA. |
| F F. Each wing divided into six . . . . .  | 9. ALUCITINA.    |

The first four of these groups, with the *Rhopalocera*, are frequently called *Macro-Lepidoptera*; the remaining five being termed *Micro-Lepidoptera*: there is a certain convenience in these terms, as they will apply to the average size of the insects in the respective groups, for of course there are many exceptions of small species among the *Macro-Lepidoptera*, and large species among the *Micro-Lepidoptera*.

\* In the *Rhopalocera* the bristle appears absent, because prolonged into an entire nervure, which is in the membrane; in the *Heterocera* this membrane is wanting, wherefore the costal cell is narrow and the nervure abbreviated to a bristle.

1. SPHINGINA, *Stainton*.Crepuscularia, *Stephens*.

*Antennæ fusiformes, i. e. in medio crassiores, utrinque attenuatæ, subprismaticæ.*

*The antennæ fusiform, i. e. thicker in the middle, attenuated at each end, subprismatic.*

2. BOMBYCINA, *Stainton*.

Pomeridiana, Nocturna partim (Lithosiidæ), et Semidiurna partim (Platypteridæ), *Stephens*.

*Antennæ setacæ, plerumque pectinatæ, vix thorace longiores. Ocelli nulli.*

*Corpus crassum, breviusculum, postice obtusum.*

*Pedes postici mediis vix longiores.*

*Alæ amplæ, anteriores sine pictura typica, posteriores læte coloratæ.*

*Larva non minus 14 pedibus instructa.*

*Antennæ setaceous, mostly pectinated (Lithosia and Platypteryx have simple setiform antennæ), hardly longer than the thorax. Ocelli none, excepting in the Chelonidæ. Body thick, rather short, and posteriorly obtuse. Posterior legs hardly longer than the middle pair. Wings broad, the anterior without any typical markings (e. g. the markings of the Saturnidæ are quite different from those of the Chelonidæ, Liparidæ, etc.; thus not as in the Noctuina). Posterior wings bright-coloured, frequently more vivid than the anterior wings (thus not so much contrasted as in the Noctuina); the larvæ with not fewer than fourteen feet.*

3. NOCTUINA, *Stainton*.Noctuæ, *Boisduval*.Noctuidæ, *Herrick-Schäffer*.Nocturna (excl. Lithosiidæ), *Stephens*.

*Antennæ setacæ, raro pectinatæ, thorace longiores. Ocelli plerisque.*

*Corpus mediocre, postice attenuatum.*

*Pedes postici mediis longiores.*

*Alæ mediocres, anteriores longiusculæ, signis constantibus pictæ, posteriores latiusculæ obsolete coloratæ.*

*Larva non minus 12 pedibus instructa.*

*Antennæ setaceous, rarely pectinated, most frequently ciliated, longer than the thorax (except in Cocytiæ). Ocelli in most. Body moderate, posteriorly attenuated; posterior legs longer than the middle pair. Wings moderate; anterior rather long, adorned with characteristic markings*

(the three spots on the middle of the wing, and the three transverse lines, vary only in intensity or sharpness of design); *posterior wings rather broad, of dingy colours* (*Catocala* and a few others differ, forming a section more allied to the *Geometrina*).

Though few would mistake a *Noctua* for a *Bombyx*, it is not easy to define in words distinctive characters which shall be constant.

#### 4. GEOMETRINA, *Stainton*.

*Geometræ, Boisduval.*

*Geometridæ, Stephens; Herrick-Schäffer.*

*Antennæ setaceæ* (sæpe ciliatæ aut pectinatæ), *thorace longiores. Ocelli nulli.*

*Corpus gracile.*

*Pedes postici mediis sensim longiores.*

*Alæ amplæ, teneræ, posteriores late coloratæ.*

*Larva pedibus 10 instructa.*

*Antennæ setaceous, frequently ciliated or pectinated, longer than the thorax. Ocelli none. Body slender* (*Boarmia* and *Biston* have the body thick, and thereby resemble the *Bombycina*, from which they are however distinguished by the larvæ). *Wings broad, of slight structure, the posterior gaily coloured* (those species which have the posterior wings covered in repose have only the rudiments of markings on the projecting inner margin). *Larva with ten feet* (in some there are one or two pair more of ill-developed ventral feet; otherwise the larva gives the most certain character of this group).

#### 5. PYRALIDINA, *Stainton*.

*Crambides, Herrick-Schäffer.*

*Pyralides et Crambides, Guénéé.*

*Pyralidæ et Crambidæ, Stephens.*

*Antennæ setaceæ, rarius pectinatæ, thorace plus duplo longiores. Ocelli plerisque.*

*Corpus gracile, elongatum.*

*Pedes elongati, posteriores reliquis longiores.*

*Alæ longius triangulares, rarius subparallele, mediocriter ciliatæ, posteriores pictæ, tribus rarius duabus venis subdorsalibus liberis.*

*Antennæ setaceous, but rarely pectinated* (*Herminia*), *more than twice the length of the thorax. Ocelli in most* (the ocelli are wanting in *Cataglyphis lemnalis*, the *Galleriæ*, *Anerastia*, etc.). *Body slender, elongated. Legs long, the posterior longer than the others. Wings rather long, triangular, rarely subparallel* (e.g. the *Galleriæ*, *Phycidæ*, and many

*Crambi*), with moderately long cilia (the *Crambidæ* have the cilia a little longer than the other families, yet not as long as in the *Tineina*); posterior wings adorned with markings (excepting the *Crambidæ*), with three, rarely with two free subdorsal nervures (the *Crambidæ* have three, in complete accordance with the *Botydes*; *Chilo* agrees in everything so closely with *Pyralis angustalis* that not even the length of the cilia serves as a distinctive character, only is the colouring of the posterior wings less developed).

The removal of the *Crambidæ* into this group had long been rendered probable, from the extreme difficulty of otherwise finding a suitable position for *Eudorea*, which indeed has alternately been placed in each family; its triangular position in repose and unconvoluted wings separating it from the *Crambi*, whereas its general appearance caused it ill to accord with the *Pyralidæ*. There is no denying that some of the *Pyralidæ* have great affinities with the *Noctuina*, indeed *Herminia* is placed by Herrich-Schäffer among the latter; but this only corroborates what has so frequently been ascertained, that no linear arrangement of species can be in exact accordance with a natural system: if the *Pyralidæ* be placed in juxtaposition with the *Noctuina*, the *Bombycoidæ*-*Geometrina* might be with equal justice placed next to the *Bombycina*.

## 6. TORTRICINA, Stainton.

Tortricidæ, Stephens; Herrich-Schäffer.

Platyomidæ, Duponchel.

*Antennæ setaceæ, thorace multo longiores, rarissime ciliatæ. Ocelli omnibus?*

*Corpus mediocre, postice subobtusum.*

*Alæ latæ, mediocriter ciliatæ, anteriores subtruncatæ, costa e basi subito convexa, posteriores latiusculæ, trapezoidales, sine pictura.*

*Larva 16 pedibus instructa.*

*Chrysalis abdominis segmentis spinuloso-coronatis.*

*Antennæ setaceous, much longer than the thorax, very rarely ciliated (Amphisa ♂). Ocelli always? present. Body moderate, posteriorly rather blunt. Wings broad, with moderately long cilia (hardly longer than in the Crambidæ); the anterior subtruncate; the costa at the base abruptly convex; the posterior rather broad, trapezoidal, without markings (the Choreutidæ appear to be more properly placed among the Pyralidina, where they are the analogues of the Achnicie). Larva with sixteen feet; pupa with spiny coronets on the segments of the abdomen (exceptions, Quercana, Chlorana).*

The palpi of the *Tortricina* are also extremely characteristic of

the group, but not being used to distinguish the other groups, are not included in the essential characters; they are rather short, triangular, compressed, with thin, short, not recurved terminal joint.

#### 7. TINEINA, *Stainton*.

*Tincacæ*, *Zeller*.

*Tineidæ*, *Duponchel*, *Herrich-Schäffer*.

*Tineidæ* partim et *Yponomeutidæ*, *Stephens*.

*Antennæ setaceæ, raro pectinatae vel ciliatæ, corpore longiores. Ocelli adsunt rarius.*

*Corpus gracile.*

*Alæ elongatæ, longe vel longissime ciliatæ, præsertim posteriores, hæc raro elongato-trapezoidales, plerumque sensim attenuatæ, sine pictura.*

*Larva 16 aut 14 pedibus instructa.*

*Antennæ setaceous, rarely pectinated or ciliated, longer than the body. Ocelli rarely present. Body slender. Wings elongate, with long or very long cilia (this is probably the most distinctive character of the Tineina; indeed there appears to be a gradual progression from the Diurnal Lepidoptera, where the cilia are shortest, to the Pterophorina and Alucitina), more especially the posterior pair; these are rarely of an elongate-trapezoidal form (in Depressaria, Semioscopis, and Euplocamus, the posterior wings are rather broad, but have not the form or shortness of those of the Tortricina; Hypercallia has regular Tortriciform posterior wings, but the antennæ and palpi show it to be a true member of the Tineina), mostly remarkably attenuated, without markings. The larvæ generally with sixteen, many with fourteen feet; the development of the feet varies greatly.*

#### 8. PTEROPHORINA, *Stainton*.

*Pterophoridæ*, *Zeller*; *Herrich-Schäffer*.

*Pterophorites*, *Duponchel*.

*Alucitidæ* pars, *Stephens*.

*Antennæ setaceæ.*

*Corpus gracile, elongatum, pictum.*

*Pedes elongati.*

*Alæ longe ciliatæ, anteriores bifidæ, posteriores trifidæ.*

*Antennæ setaceous. Body slender, elongated, with markings. Legs elongated. Wings with long cilia, the anterior bifid, the posterior trifid. (Agdistes has the wings entire, but the place where the fissure of the anterior wings should be is scantily furnished with scales.)*

## 9. ALUCITINA, Zeller.

Orncodites, Duponchel.

Orncodidæ, Herrich-Schäffer.

Alucitidæ pars, Stephens.

*Antennæ setaceæ.**Corpus gracile, breve, pictum.**Alæ longe ciliatæ, singulæ sexpartitæ.**Antennæ setaceous. Body slender, short, with markings. Wings with long cilia, each divided into six.*


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The *Tineina*, which form the subject of this volume, are an extremely interesting group in many respects. It has been the remark of every writer, that the smaller the species the more splendid the colouring and the more sharply-defined the markings; but one of the greatest points of attraction to the study of this group is afforded by the endless variety in the habits of the species. It is precisely among the smallest species that we find the characters of the families most strongly defined; and whereas among the larger species it is extremely difficult to arrange them in families with good distinctive characters, in the smaller species no such difficulty exists.

The most generally known species of this group are those included in the genus *Tinea*, which are commonly termed "clothes-moths;" these however give but a very faint idea of the whole group, which are mostly vegetable-feeders, and, with some few exceptions, do not cause us any great amount of injury; on the other hand, from their small size and secluded mode of living, their beauties are seldom displayed to any but those who collect them.

The larvæ of many construct portable cases, of which that of *Tinea pellionella* is but a too familiar instance, being found abundantly in houses, on furs or coats that have been put away and neglected. Some few larvæ live entirely exposed, but more frequently they shelter themselves between united leaves, or by drawing together the terminal shoots of plants, thus betraying themselves to the experienced eye, and being far easier found than if the larvæ were themselves exposed to view; the great bulk of the smaller families mine between the cuticles of leaves, and the consequent ease with which they may be detected is surprising,



for the mined place becoming discoloured can be distinguished from a considerable distance; and not only so, but the mined place remains a sign-post that such a larva had been feeding there as long as the leaf remains on the plant; thus, whereas in the *Rhopalocera* and larger groups of the *Heterocera*, it would be impossible, from the sight of a half-eaten leaf, to name the species or even the genus to which the larva that had eaten it belonged, in the smaller families of the *Tineina* not the slightest difficulty occurs.

Some of the perfect insects fly during the hot sunshine, but the greater portion fly in the early morning or in the evening twilight. That many species fly during the night I have palpable demonstration, from the numbers that have occasionally been attracted by my light.

The summer months, May to August, are those in which the *Tineina* most abound; in September and October they are far more plentiful than is usually imagined, only that after the middle of August they keep themselves so well concealed, and so rarely stir abroad, that they are scarcely ever seen, but by collecting the larvæ previously the perfect insects may be freely bred in those months.

In the winter months but very few species emerge from the pupa state, though many of those hatched in the autumn hibernate, and are seen commonly in the spring (as, for instance, *Depressaria applanata*).

The great bulk of the species pass the winter in the larva state, generally without feeding; some, whose tastes are adapted for the consumption of decaying wood, of which a supply is at all seasons available, continue to feed throughout the winter, and some, which feed on plants whose stems or leaves remain through the winter, also abstain from fasting.

Little is as yet known of the geographical distribution of this group, but few species having been collected out of Europe; with regard to the European species there is this peculiarity, that the species seem far more generally distributed than we find to be the case in the larger groups of *Lepidoptera*, and if it be true that England was separated from Europe before the *Rhopalocera* were distributed over that continent (hence accounting for the extreme paucity of species with us), the *Tineina* must have preceded the *Rhopalocera*, since of the continental species by far the greater portion are indigenous to these islands.

The families of the *Tineina* which are represented in this country may be arranged in the following table:—

- A. Wings of the ♀ much less developed than in the ♂, short and pointed. Posterior wings of the ♂ broad, not emarginated . . . 1. EXAPATIDÆ.
- A A. Wings of the ♀ wanting. (*Tineidæ pars.*)
- A A A. Wings of the ♀ as fully developed as in the ♂.
- B. Antennæ not porrected in repose.
- C. Antennæ with basal joint not expanded into an eye-cap.
- D. Labial palpi short and thick.
- E. Anterior wings oblong; maxillary palpi generally well developed . . . 2. TINEIDÆ.
- E E. Anterior wings elongate; maxillary palpi never developed.
- F. Posterior wings ovato-lanceolate. (*Hyponomeutidæ pars.*)
- F F. Posterior wings lanceolate . . . 7. ARGYRESTHIDÆ.
- D D. Labial palpi rather short, terminal joint pointed.
- G. Anterior wings elongate; cilia of the posterior wings not nearly so long as the breadth of the posterior wings . . . 3. HYPONOMEUTIDÆ.
- G G. Anterior wings oblong; cilia of the posterior wings nearly as long or longer than the breadth of the posterior wings . . . 6. GLYPHIPTERYGIDÆ.
- D D D. Labial palpi long and pointed.
- H. Posterior wings broad or emarginated before the apex . . . 5. GELECHIDÆ.
- H H. Posterior wings narrow, not emarginated before the apex.
- I. Maxillary palpi ill-developed, hardly perceptible; the perfect insect reposes flat on the surface on which it rests . . . 10. ELACHISTIDÆ.
- I I. Maxillary palpi well-developed, filiform, projecting; the perfect insect reposes with its head elevated, the body forming an angle of 30° with the surface on which it rests . . . 8. ORNICHIDÆ.
- D D D D. Labial palpi short, obtuse, and drooping. Posterior wings lanceolate . . . 11. LITHOCOLLETIDÆ.

- c c. Antennæ with basal joint expanded into an eye-cap.  
 K. Antennæ more than half the length of the anterior wings . . . . . 12. LYONETIDÆ.  
 K K. Antennæ not half the length of the anterior wings . . . . . 13. NEPTICULIDÆ.  
 B B. Antennæ porrected in repose.  
 L. Head rough. Anterior wings oblong or elongate . . . . . 4. PLUTELLIDÆ.  
 L L. Head smooth. Anterior wings lanceolate . . . . . 9. COLEOPHORIDÆ.

## FAMILY I. EXAPATIDÆ.

*Alæ maris amplæ, fœminæ valde abbreviatæ et acuminatæ. Antennæ crassiusculæ, pubescentes vel dense ciliatæ. Haustellum breve, aut nullum. Palpi labiales breves, aut longiusculi; palpi maxillares desunt. Larva 16 pedibus instructa; tertio pari claviformi; inter folia victitat.*

*Wings of the males of large size, of the females extremely abbreviated and pointed. Antennæ rather thick, pubescent or densely ciliated. Tongue short or entirely wanting. Labial palpi short or moderately long; maxillary palpi undeveloped. Larvæ with sixteen legs, the third pair club-shaped. This character does not appear quite universal in this family; it occurs both in *Salicella* and *Fugella*, but in *Phryganella*, according to M<sup>de</sup>me. Lienig's observations (*Isis*, 1846, p. 269), this peculiarity is restricted to the young larvæ of the males; the adult male larvæ and the female larvæ always having the third pair of legs of the ordinary form, and the larvæ of *Gelatella* never have this peculiar formation of the third pair of legs.*

This family contains three genera, consisting of four species, and no other European species are at present known.

The larvæ feed in the summer and autumn between united leaves, and the perfect insects appear at the commencement of winter (when *C. Phryganella* may frequently be observed on the wing in the day-time), or early in the spring.

The three genera may be readily distinguished as follows:—

Tongue none.

Labial palpi of the ♂ very short. 1. EXAPATÆ.

Labial palpi porrected. 2. DASYSTOMA.

Tongue short.

Labial palpi ascending; terminal joint smooth and pointed. 3. CHIMABACCHE.

Genus I. **EXAPATE.**

EXAPATE, Hüb. V. 387 (1817). *Cheimaphasia*, Curt. *Oxypate*, Stép. *Cheimonophila*, Dup. *Diurnea* p., Haw. *Lemmatophila* p., Treit. *Exapate* p., Zell.

Caput superne ac in fronte hirsutum. Ocelli supra oculos. Antennæ crassiusculæ, ♂ pubescentes, ♀ pilis parce vestitæ. Palpi labiales (♂) *brevissimi*, pilis vestiti (♀ longiores, porrecti). Haustellum nullum. Alæ mediocriter ciliatæ, anteriores oblongo-ovatæ (♀ angustatæ, abbreviatæ), posteriores ovatæ (♀ nullæ); anteriores: vena apicalis *simplex* ante apicem exit, infra eam venæ *sex*, quarum ultima a penultima longe distant, submediana abest, subdorsalis furca superior obsoleta; posteriores: vena apicalis longe *furcata* supra et infra apicem exit, infra eam venæ duæ e *venula transversa angulata*, mediana bifida.

Head above and in front hairy. Ocelli placed above the eyes. Antennæ rather thick, in the ♂ pubescent, in the ♀ sparingly clothed with hairs. Labial palpi of the ♂ *very short*, clothed with hairs, of the ♀ longer and porrected. Tongue wanting. Wings with moderate cilia, the anterior in the ♂ oblong-ovate, in the ♀ very narrow and very short, the posterior in the ♂ ovate, in the ♀ wanting. In the anterior wings the *simple* apical vein runs into the costa before the apex, below it are *six* veins, of which the last is at a considerable distance from the penultimate, the submedian vein is not indicated, and the upper branch of the subdorsal vein is obsolete. In the posterior wings the apical vein is *extensively forked*, terminating above and below the apex of the wing, beneath it are two veins from the *angulated transverse vein*, the median vein is bifid.

There is only one species in this genus. The perfect insect appears at the end of autumn, and is occasionally met with on old palings at night; the larva feeds in the summer (according to Lienig and Freyer) between united leaves of hawthorn and other plants (but according to other observers, in decayed wood).

1. **gelatella**, L. F. S. 1450 (1761); Fab.; Treit.; Stép.; Frey. N. B. pl. 150. f. 2; Dup.—*gelatana*, Hüb. Alis anticis grisco-fuscis vix purpurascenti-finctis, costam versus saturationibus, vitta lata disci a basi fere ad marginem posticum albida, in qua macula ante medium, alteraque cellulam discoidalem terminante saturate fuscis, macula parva fusca supra plicam pone medium, macula costali apicem versus saturate fusca, punctisque parvis marginis postici saturate fuscis; ♀ alis anticis brevissimis, angustissimis, albido-griseis fusco-marginatis. Exp. al. ♂  $9\frac{1}{2}$  lin.; ♀ 4 lin.

Head, face, and palpi black. Antennæ dark grey. Anterior wings greyish-fuscous, with a slight purplish gloss, towards the costa rather darker, and with a broad streak on the disc, from the base to near the

hinder margin whitish; in this before the middle is a dark fuscous spot, and another dark fuscous spot lies in the streak at the termination of the discoidal cell, below which, but above the fold, is a small fuscous spot; on the costa rather before the apex is a dark fuscous spot, and there are some small fuscous spots along the hinder margin; cilia pale grey. Posterior wings pale greyish-fuscous, with paler cilia.

The female has the anterior wings very short and extremely narrow, whitish-grey, with the margins somewhat fuscous.

South of England, November and December; not common.

## Genus II. **DASYSTOMA.**

**DASYSTOMA**, Curt. Ent. Mag. i. 190 (1833); Step. *Diurnea* p., Haw. *Cheimophila* p., Hüb. *Lemmatophila* p., Treit.; Dup. *Exapate* p., Zell.

Caput pilis decumbentibus vestitum, epistomio lævigato. Ocelli supra oculos. Antennæ crassiusculæ, ♂ dense ciliatæ. Palpi labiales *porrecti*, pilis vestiti. Haustellum nullum. Alæ mediocriter ciliatæ, anteriores oblongo-ovatæ (♀ angustatæ, abbreviatæ), posteriores ovatæ (♀ nullæ); anteriores: vena apicalis *furcata* supra et infra apicem exit, infra eam venæ *quatuor*, ultima parum curva, subdorsalis *furcata*; posteriores: vena apicalis *simplex* ante apicem exit, infra eam venæ duæ e venula transversa, vena mediana bifida.

Head clothed with decumbent hairs, in front smooth. Ocelli placed above the eyes. Antennæ rather thick, in the ♂ densely ciliated. Labial palpi *porrected*, clothed with hairs. Tongue wanting. Wings with moderate cilia, the anterior in the ♂ oblong-ovate, in the ♀ extremely narrow and very short, the posterior in the ♂ ovate, in the ♀ wanting. In the anterior wings the *furcate* apical vein terminates in the costa, and in the hinder margin; below it are *four* veins, of which the last is slightly curved; the subdorsal vein is *furcate*. In the posterior wings the *simple* apical vein terminates on the costa immediately before the apex, below it are two veins from the transverse vein; the median vein is bifid.

There is only one species in this genus; the perfect insect appears in the spring among willows, flying by day; the larva feeds in the summer and autumn between united leaves of willow, the third pair of feet are club-shaped (according to Lienig, but *not so according to Freyer*).

1. **Salicella**, Hüb. Tin. f. 9 (1801); Treit.; Curt.; Step.; Frey.; Dup.; Lienig.—*Salicis*, Haw. Alis anticis dilute griseo-fuscis rosco-suffusis, disco dilutiore, macula transversali saturate fusca fere in medio, punctis duobus disci fere connexis pone medium, margine postico sa-

turatiore fusco; ♀ alis anticis brevissimis angustissimis dilute griseis (vix roseo-suffusis) fasciis duabus nigris, altera in medio, altera ante apicem. Exp. al. ♂ 8 lin.; ♀  $3\frac{1}{2}$  lin.

Head, face, and palpi reddish-fuscous. Antennæ dark fuscous. Anterior wings pale greyish-fuscous, with a strong rosy tint, palest on the disc, with a dark fuscous fascia-form mark nearly in the middle, and two dark fuscous spots on the disc, almost united, beyond the middle; hinder margin rather dark fuscous; cilia pale reddish-fuscous. Posterior wings fuscous, towards the base rather paler, with pale fuscous cilia.

The female has the anterior wings extremely abbreviated and very narrow, pale grey, with a very slight rosy tint, with a black fascia in the middle, and another immediately before the apex.

England and (south of Scotland?); April; not uncommon.

### Genus III. CHIMABACCHE.

CHIMABACCHE, Zell. Isis 1839, p. 181. *Diurnea*, Curt. *Diurnea* p., Haw. *Lemmatophila* p., Tr. *Chimabacche* et *Cheimophila* p., Hüb. *Cheimophila* et *Diurnea*, Step. *Diurnea* et *Lemmatophila* p., Dup.

Capilli superne suberecti, in fronte decumbentes. Ocelli nulli. Antennæ crassiusculæ, ♂ dense ciliatæ, vel pubescentes. Palpi labiales *adscendentes*, articulo secundo dense squamato, *tertio levi acuto*. Haustellum breve, basi parce squamata. Alæ mediocriter ciliatæ, anteriores oblongo-ovatæ (♀ abbreviatæ acuminatæ), posteriores ovatæ (♀ abbreviatæ acuminatæ); anteriores: vena apicalis furcata supra et infra apicem exit, infra eam venæ *quinque*, ultima parum curva, subdorsalis furcata; posteriores: vena apicalis simplex ante apicem exit, infra eam venæ duæ e venula transversa, mediana *trifida*.

Head above with the hairs rather erect, in front smooth. Ocelli none. Antennæ rather thick, in the ♂ densely ciliated or pubescent. Labial palpi *ascending*; the second joint thickly scaled; the terminal joint *smooth and pointed*. Tongue short, with a few scales at the base. Wings with moderate cilia; the anterior in the ♂ oblong-ovate, in the ♀ short and pointed; the posterior in the ♂ ovate, in the ♀ short and narrow. In the anterior wings the furcate apical vein terminates in the costa, and in the hinder margin; below it are *five* veins, of which the last is slightly curved; the subdorsal vein is furcate. In the posterior wings the simple apical vein terminates in the costa before the apex; below it are two veins from the transverse vein; the median vein is *trifid*.

This genus comprises only two species, one of which appears in autumn, the other in spring; from the structure of the palpi and antennæ they may be separated thus:—

*a.* Third joint of the palpi erect, rather long. Antennæ of the ♂ densely ciliated. Species 1.

*a a.* Third joint of the palpi ascending, rather short. Antennæ of the ♂ pubescent. Species 2.

1. **phryganella**, Hüb. Tin. f. 10 (1801); Haw.; Treit.; Step.; Dup.; Lienig. ♀ *Novembris*, Haw.: Step.; Curt. B. E. fo. 743. Alis anticis *dilute brunneis*, costam versus saturatoribus, squamis sparsis disci albidis, maculis duabus fere obsoletis fuscis, altera in medio, altera pone medium; ♀ alis anticis brevibus et postice acutissimis, albido-griseis, fusco-signatis, stria angulata saturate fusca in medio, utrum marginem non attingente, punctis duobus disci, maculaque obliqua transversali apicem versus saturate fuscis. Exp. al. ♂ 10½ lin.; ♀ 8 lin.

Head and face reddish-grey. Palpi fuscous; the base of the second joint greyish-ochreous; terminal joint ochreous, with a fuscous ring before the apex. Antennæ greyish, annulated with fuscous. Anterior wings *rather pale brown*, darker towards the costa, with some scattered whitish scales on the disc, and two faintly indicated oblique fuscous blotches, one in the middle, the other beyond the middle; before the apex near the costa is a faint fuscous blotch; cilia pale fuscous. Posterior wings fuscous, with paler cilia.

The female has the anterior wings short, and posteriorly extremely acute, whitish-grey, marked with fuscous; in the middle is a dark fuscous or black angulated mark, not reaching either margin, beyond are two dark fuscous spots on the disc, followed by an oblique dark fuscous fascia-form mark.

Generally distributed. The perfect insect appears in October and November; the ♂ flying freely in the daytime, the ♀ may be found resting on the trunks of trees. The larva (according to Lienig) feeds in June on oaks; that of the ♂ when young having the third pair of feet club-shaped.

2. **Fagella**, W. V. 135. 34 (1776); Fab.; Hüb.; Treit.; Step.; Dup. L. F. xi. pl. 287. f. 1, 2.—*Fagi*, Fab.; Haw.; var. *Dormoyella*, Dup. L. F. xi. pl. 287. f. 3, 4. Alis anticis *albidis* lutescentibusve, fusco (interdum valde) suffusis, stria angulata saturate fusca ante medium, infra plicam interrupta et dorsum non attingente, *punctis duobus disci* fere in medio (inferiore posteriore), tertio disci pone medium, striaque transversali cellulam discoidalem terminante, saturate fuscis, striga obsoleta angulata ac indentata marginem posticum versus, margine postico apiceque costa saturate fusco-punctatis; ♀ alis anticis angustioribus brevioribus, apice acuto, saturatoribus, signis obsoletioribus. Exp. al. ♂ 13 lin.; ♀ 9 lin.

Head and face whitish-grey, mixed with fuscous. Palpi whitish-grey, mixed with fuscous; tip of the terminal joint pale-ochreous. Antennæ whitish-grey, annulated with fuscous. Anterior wings *whitish*, more or less inclining to yellowish, suffused (sometimes very much so)

with fuscous scales, with an angulated dark fuscous striga before the middle, interrupted however soon after crossing the fold, and not reaching to the inner margin; on the disc, nearly in the middle, are *two small dark fuscous spots*, of which the lower one is the posterior, another dark fuscous spot lies on the disc a little beyond the middle, and at the termination of the discoidal cell is a small transverse dark fuscous streak; towards the hinder margin is a faint, angulated, and indented striga; the hinder margin and apex of the costa are spotted dark, with fuscous; cilia whitish, interrupted with fuscous opposite the marginal spots. Posterior wings rather pale-grey, darker posteriorly with whitish cilia.

The female has the anterior wings narrower, shorter, and abruptly acute, generally darker than in the male, and the markings less distinct.

An abundant species throughout the country, sitting on the trunks of trees during the cold showery weather of April. The larva (with the third pair of feet club-shaped) is polyphagous, feeding between united leaves in September and October. I have found it on birch, sawallow, and mountain-ash.

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## FAMILY II. TINEIDÆ.

*Caput lanatum*; *palpi labiales breves, crassi*; *palpi maxillares plerisque 5- vel 6-articulati*. *Larva saccophora*, vel in fungis intra cuniculos sericcos vivens.

*Head rough*, having a woolly appearance (*Iampronia* and some of the *Adelæ* are exceptions); *labial palpi short and thick*; maxillary palpi in many of the genera extremely developed, five- or six-jointed; antennæ extremely variable, pectinated, ciliated, or simple, short, of moderate length, or very long; tongue rarely absent. *Larvæ case-bearers*, or feeding in fungi, or decayed wood, in galleries lined with silk, or in the pith of the stems of plants. The larvæ of the singular genus *Ochsenheimeria* burrow down the stems of grass.

It is to this family that those pests of our houses, the clothes-moths, belong; they form the bulk of the genus *Tinea*, but only a few species annoy us by their ravages.

The first two genera, having apterous females, are the representatives of the *Fumee* amongst the *Tineina*. The three last genera of this family (the long-horns) might at first sight appear to form a natural group by themselves, but the development of the maxillary palpi in *Nemophora*, and the want of them in *Adela* and *Nemotois*, show that they are not sufficiently related *inter se* to warrant such a step, and to place *Adela* and *Nemotois* in a dis-



inct family, leaving *Nemophora* among the *Tineidæ*, would rather outrage our ideas of relationship.

This family contains fourteen genera which are represented in this country (two or three others, *Eriocottis*, *Hapsifera*, etc., occurring on the continent); they may be distinguished as follows:—

- a.* Maxillary palpi undeveloped.
  - b.* Antennæ of moderate length.
    - c.* Head rough.
      - d.* Females wingless.
        - e.* Ocelli distinct. 1. TALÆPORIA.
        - e e.* Ocelli none. 2. SOLENOBIA.
      - d d.* Females winged.
        - f.* Labial palpi short, not thickened with scales.
          - g.* Ocelli distinct. 3. DIPLODOMA.
          - g g.* Ocelli none. 4. XYSMOTODOMA.
        - f f.* Labial palpi porrected; second joint very hairy, and with a projecting tuft. Anterior wings with raised scales. 5. OCHSENHEIMERIA.
    - c c.* Head smooth. 9. LAMPROSETIA.
  - b b.* Antennæ very long.
    - h.* Eyes of the males distant. 13. ADELA.
    - h h.* Eyes of the males large, approximating. 14. NEMOTOIS.
- a a.* Maxillary palpi 5–6-jointed.
  - b.* Antennæ of moderate length.
    - c.* Head rough.
      - i.* Terminal joint of labial palpi slender, ascending. 6. EUPLOCAMUS.
      - i i.* Terminal joint of labial palpi thick, not ascending.
        - k.* Posterior wings clothed with scales. 7. TINEA.
        - k k.* Posterior wings clothed with hairs.
          - l.* Ocelli none. 10. INCURVARIA.
          - l l.* Ocelli distinct. 11. MICROPTERYX.
    - c c.* Head in front and on the crown smooth. 8. LAMPRONIA.
  - b b.* Antennæ very long. 12. NEMOPIORA.

### Genus I. TALÆPORIA.

TALÆPORIA, Zell. L. E. vii. 331 et 336 (1852). *Cochleophasia*, Curt.;  
Step. *Taleporia* p., Hüb. *Solenobia* p., Dup.

Caput superne et in fronte hirsutum. Ocelli distincti pone oculos. Antennæ ♂ setacæ, crenulatæ, ciliatæ. Palpi maxillares nulli. Palpi labiales cylindrici, pilosuli; articulo secundo infra, et apice supra setoso. Haustellum nullum. Alæ oblongæ, mediocriter ciliatæ; anteriores: cellula discoidalis venas sex in marginem posticum emittit, supremam furcatam. ♀ Apteræ, ano lanato. Larva saccophora, sacco longo, gracili, granulato, anum versus attenuato.

Head above and in front hairy. *Ocelli distinct* behind the eyes. Antennæ of the ♂ setaceous, ciliated. Maxillary palpi none. Labial palpi cylindrical, hairy; the second joint armed with bristles beneath, and above at the apex. Tongue wanting. Wings oblong, with moderate cilia. From the discoidal cell of the anterior wings *six* veins run to the hinder margin; of these the uppermost is *furcate*. *Female apterous*, with the anus woolly. Larva case-bearing; the case long, *slender*, granulated, attenuated towards the anus.

The food of the larvæ is probably lichen; the cases are found on the trunks of trees and palings, the larvæ being full fed in the early spring. The only two British species may be easily distinguished:—

a. Anterior wings reticulated. Species 2.

a a. Anterior wings unicolorous. Species 1.

The latter (*pubicornis*) hardly belongs to this genus, having the antennæ *pubescent*, not ciliated, the palpi less hairy, and a short tongue: its transformations are unknown.

1. **pubicornis**, Haw. L. B. 523 (1829); Curt.; Sta.; Zell.; Step. ? Alis anticis nitidis fuscis *immaculatis*, costa basim versus saturatiore. Exp. al.  $7\frac{1}{2}$  lin.

Head and face ochreous. Palpi fuscous, tip of the terminal joint yellowish. Antennæ fuscous. Anterior wings shining-fuscous, *immaculate*; the costa towards the base rather darker; cilia pale fuscous. Posterior wings grey, with paler cilia.

Female unknown.

Taken by Mr. Allis, near Grassington, Yorkshire, in June.

2. **pseudobombycella**, Hüb. Tin. f. 212 (1801); Z. g. S.; Treit.; F. v. R.; Zell.—*glabrella*, Ochsenh.—*tessellea*, Haw.; Curt.; Step. Alis anticis fusco-cinereis, *maculis numerosis dilute luteis, quasi reticulatis*, macula disci pone medium saturatiore, maculis duabus dorsi dilute luteis, altera in medio, altera ad angulum analem. Exp. al. 8 lin.

Head and face pale ochreous. Palpi pale fuscous, terminal joint pale greyish-ochreous. Antennæ fuscous. Anterior wings greyish-fuscous, *with numerous faint pale yellowish spots* (except towards the base and basal half of the costa), *which give the wing an almost reticulated appearance*, in which there appears a darker spot on the disc, beyond the middle; on the inner margin are two longer pale yellowish spots, one in the middle, the other at the anal angle; cilia grey. Posterior wings grey, with paler cilia.

Female fuscous, with the anal tuft greyish.

Common in the south of England; the larva on the trunks of trees and palings in April and May; the perfect insect in June.

Genus II. **SOLENOBIA.**

SOLENOBIA, Zell. L. E. vii. 332 et 343 (1852). *Taleporia* p., Hüb. *Solenobia* p., Dup.

Caput superne et in fronte hirsutum. *Ocelli nulli.* Antennæ ♂ setaceæ, ciliatæ. Os pilosum, *palpis subnullis.* Alæ oblongæ, medio-criter ciliatæ; anteriores: cellula discoidalis venas *quinque* in marginem posticum emittit *simplices.* ♀ *Aptera*, ano lanato. Larva saccophora, sacco *breviusculo*, granulato, anum versus attenuato.

Head above and in front hairy. *Ocelli none.* Antennæ of the ♂ setaceous, ciliated. Maxillary palpi undeveloped. Labial palpi *extremely short*, almost concealed in the hairs of the mouth. Wings oblong, with moderate cilia. From the discoidal cell of the anterior wings *five simple* veins run to the hinder margin. ♀ *Apterous*, with the anus woolly. Larva case-bearing; the case *rather short*, granulated, attenuated towards the anus.

The food of the larvæ is probably lichen; the cases are found on the trunks of trees, palings, and rocks; the larvæ being full fed in the early spring.

The only two British species, of which we know the males, are very closely allied. We appear to have several species of larvæ, but from some only females have yet been obtained, from which, without continued observations of the larvæ, cases, and whole habits of the insects, it is impossible to distinguish the species. It is in this genus that we meet with the singular physiological fact of unimpregnated females laying fertile eggs, and not as the exception, but as the rule. (See Trans. Ent. Soc. London, vol. i. N. S. p. 234.)

1. **inconspicuenta**, Sta. Cat. p. 6 (1849); Zell. *Alis anticis angustulis*, apice rotundato, cinereo-fuscis, maculis numerosis irregularibus mediocribus albidis *vix distinctis*, margine postico *fusco-punctato.* Exp. al.  $5\frac{1}{2}$ –6 lin.

Head and face grey. Antennæ dark-grey. Anterior wings *rather narrow*, with the apex rounded, greyish-fuscous, with numerous irregular rather large whitish spots, *not sharply defined*; on the hinder margin is a row of *dark spots*; cilia alternately whitish and greyish-fuscous. Posterior wings pale-grey, with paler cilia.

Not common. The larvæ are full fed before the end of March, when they may be found on palings; the perfect insect appears early in April.

2. **Douglasii**, n. sp. *Alis anticis vix angustis*, apice *paullulum* rotundato, cinereo-fuscis, *apicem versus saturatioribus*, maculis numerosis irregularibus mediocribus *fere distinctis* albidis. Exp. al. 6 lin.

Head, face, and antennæ greyish-fuscous. Anterior wings *hardly narrow*, with the apex *slightly* rounded, greyish-fuscous, *towards the*

*apex rather darker*, with numerous irregular rather large whitish spots *rather sharply defined*; cilia whitish, with some fuscous patches opposite the fuscous portions of the hinder margin. Posterior wings pale-grey, with paler cilia.

A single specimen, in the collection of Mr. Douglas, taken by him at Birch Wood in the spring.

### Genus III. **DIPLODOMA.**

DIPLODOMA, Zell. L. E. vii. 332 et 359 (1852). *Lampronia* p., Step.

Caput superne et in fronte hirsutum. *Ocelli distincti* pone oculos.

Antennæ setaceæ, ♂ ciliatæ, ♀ subdentatæ. Palpi maxillares nulli.

Palpi labiales cylindrici pilosi. Alæ anteriores, oblongæ, medioeriter ciliatæ; anteriores: cellula discoidalis venas *sex* in marginem posticum emittit, supremam simplicem subapicalem. ♀ *Alata*, ano lanato.

Larva saccophora, *sacco in indusium incluso*.

Head above and in front hairy. *Ocelli distinct* behind the eyes. Antennæ setaceous, of the ♂ ciliated, of the ♀ subdentate. Maxillary palpi none. Labial palpi cylindric, hairy. Wings oblong, with moderate cilia. From the discoidal cell of the anterior wings *six simple* veins run into the hinder margin. *Female winged*, with the anus woolly. Larva case-bearing, *the case enclosed in an outer covering*.

But one species is known in this genus.

1. **marginepunctella**, Step. II. iv. 358 (1835); Zell. L. E. vii. —*siderella*, Zell. Isis. 1839; H.-S. Tin. pl. 46. f. 319. Alis anticis saturate fuscis vix purpurascente tinctis, punctis numerosis dilute luteis, quasi in fascias duas, costam versus furcatis, aggregatis, quarum prima ad dorsum conspicuere. Exp. al.  $5\frac{1}{2}$  lin.

Head greyish-ochreous, mixed with fuscous. Face fuscous. Palpi fuscous, terminal joint whitish. Antennæ fuscous. Anterior wings dark-fuscous, with a slight purplish gloss, with numerous small pale-yellow spots, which appear to form two fasciæ, one rather broad before the middle, and one narrower towards the hinder margin, both are furcate on the costa, the anterior appears on the inner margin as a conspicuous spot; cilia dark-fuscous, interrupted with pale-yellowish. Posterior wings dark-fuscous, with a slight purplish gloss; cilia grey.

Not common. The perfect insect appears in June and July; the food of the larva (remarkable for its *double* case) has not yet been ascertained.

### Genus IV. **XYSMATODOMA.**

XYSMATODOMA, Zell. L. E. vii. 332 et 362 (1852). *Lampronia* p., Step.

Caput superne et in fronte hirsutum. *Ocelli nulli*. Antennæ setaceæ, ♂ setoso-ciliatæ. Palpi maxillares nulli. Palpi labiales cylindrici, breves, hirsuti. Alæ (♀ graciliores) oblongæ, mediocriter ciliatæ; anteriores: cellula discoidalis venas *quinque* in marginem posticum emittit. ♀ *Alata*, ano lanato. Larva saccophora, sacco *simplici*, breviusculo, granulato.

Head above and in front hairy. *Ocelli none*. Antennæ setaceous, in the ♂ strongly ciliated. Maxillary palpi none. Labial palpi short, cylindric, hairy. Wings oblong (of the ♀ narrower), with moderate cilia. From the discoidal cell of the anterior wings *five veins* run to the hinder margin. *Female winged*, with the anus woolly. Larva case-bearing; the case *simple*, rather short, granulated.

But one British species is known in this genus; on the continent is another closely allied to it. *Argentimaculella* I refer to the genus *Tinea*.

1. **melanella**, Haw. L. B. 566 (1829); Step.; Zell. L. E. vii.—*atrella*, Step.—*stelliferella*, F. v. R. pl. 59.—*sequella*, Haw.? Alis anticis nigris, punctis numerosis sparsis luteo-albis, fascia obsoleta ad dorsum distinctiore ante medium luteo-alba, macula parva dorsi pone medium punctoque costæ apicem versus albidis, apice costæ margineque postico albedo-punctatis. Exp. al.  $5\frac{1}{2}$  lin.

Head and face black. Palpi fuscous; terminal joint whitish. Anterior wings black, with numerous scattered yellowish-white spots, with an indistinct rather interrupted yellowish-white fascia before the middle, most conspicuous on the inner margin; a small whitish spot lies on the inner margin beyond the middle, and on the costa, rather posterior, is another small whitish spot; the apex of the costa and hinder margin are spotted with whitish; cilia dark-fuscous, externally with some whitish patches. Posterior wings greyish-fuscous, with paler cilia.

In the south of England; not scarce. The larvæ feed on lichen, and are found on old palings, etc., in April and May, the perfect insect appearing in June.

#### Genus V. **OCHSENHEIMERIA.**

OCHSENHEIMERIA, Hüb. V. 416 (1817); Zell. *Lepidocera*, Curt.; Step. *Phygæ*, Treit.; Dup.

Caput superne *valde hirsutum*, in fronte squamaceum. *Ocelli distincti* pone oculos. Antennæ crassiusculæ, interdum *squamis usque medium incrassatæ*. Palpi maxillares nulli. *Palpi labiales porrecti; articulo secundo valde hirsuto*, articulo tertio lævi adscendente acuminato. Haustellum breve, nudum. Alæ mediocriter ciliatæ; anteriores oblongæ, *squamis exasperatis*, posteriores oblongo-ovatæ; anteriores: vena apicalis furcata ante apicem exit, infra eam venæ quatuor, submedianæ

apex incrassatus, subdorsalis longe furcata; posteriores: venæ apicalis furcatae ramus inferior in apicem exit, infra eam venæ duæ c venula transversa; mediana bifida.

*Head above very hairy*, in front more clothed with scales. *Ocelli distinct* behind the eyes. *Antennæ* rather thick, about half the length of the anterior wings, sometimes *thickened with scales to the middle*. Maxillary palpi undeveloped. *Labial palpi porrected, the second joint very hairy*, and with a prolonged tuft, the third joint smooth, ascending, pointed. Tongue short, not clothed with scales. *Wings* with moderate cilia, the anterior oblong, with semi-erect scales (having a rugged appearance), the posterior oblong-ovate. In the anterior wings the apical vein is furcate, terminating in the costa before the apex, beneath it are four veins; the apex of the submedian vein is thickened, and the subdorsal vein is for a considerable length furcate; in the posterior wings the lower branch of the forked apical vein terminates in the apex, below it two veins run from the transverse vein, and the median vein is bifid.

The perfect insects of this genus are found among grass, but, except during the very middle of the day, from 12 to 2 P.M., are rarely met with; at that hour they are very active, hopping about on the stems of the grass, and taking short flights, but their period of flight once over, they conceal themselves so well that it is almost impossible to detect them. The larva of one species (*O. Birdella*) I have occasionally met with, when full fed, crawling on grass; but it feeds inside the stems, and in one instance had bored down the stem of *Dactylus glomeratus* almost to the root, and was only detected by the fact of an *Elachista* having taken a fancy to the same plant of *Dactylus*, which led Mr. Wing to the discovery of the concealed *Ochsenheimeria*. Mr. Scott also found these larvæ in the stems of grass.

We have only three British species in this genus (two others are known on the continent); they may be readily distinguished by the antennæ.

*a. Antennæ much thickened with scales to the middle. Species 1.*

*a a. Antennæ very slightly thickened with scales nearly to the middle. Species 2.*

*a a a. Antennæ perfectly simple. Species 3.*

1. **Birdella**, Curt. B. E. fo. 344 (1831); Step.; Sta.—*Bisontella*, Sta.—*Mediopectinella*, Haw.? Step.? Alis anticis griseo-fuscis vel obscure ochreis, squamis numerosis exasperatis fuscis, albidisve; alis posticis purpureo-fuscis, ipsa basi hyalina. Capillis griseo-fuscis. *Antennis usque medium valde incrassatis squamis erectis projicientibus.* Exp. al.  $5\frac{1}{2}$ – $6\frac{1}{2}$  lin.

Hairs of the head and face greyish-fuscous. Antennæ at the base

greyish-fuscous, then dark fuscous, *much thickened to the middle* with projecting scales. Anterior wings greyish-fuscous or dingy ochreous, with numerous scattered dark fuscous and whitish elevated scales; cilia greyish-fuscous or dark ochreous, with the lips dark fuscous. Posterior wings purplish-fuscous; *the extreme base almost transparent*; cilia grey.

This variable species is in some meadows extremely abundant towards the end of July. The dirty-whitish larva feeds inside the stem of *Dactylus glomeratus* in May.

2. **Bisontella**, Lienig et Zell. Isis, 1846, p. 274. — *Taurella*, Curt.; Haw.? Step.? — *Vacculella*, Sta. Alis anticis grisco-fuscis, saturate-fusco valde suffusis; alis posticis dilute griseis, vix purpureo-tinctis, *ipsa basi hyalina*. Capillis saturate ochreo-fuscis. *Antennis basin versus squamis paullulum incrassatis*. Exp. al.  $4\frac{1}{2}$ –5 lin.

Hairs of the head and face dark ochreous-fuscous. *Antennæ* dark fuscous, *towards the base slightly thickened with scales* (most distinctly in the ♀). Anterior wings greyish-fuscous, almost entirely suffused with dark fuscous (in the ♀ more ochreous); cilia greyish-fuscous, darkest before the tips. Posterior wings pale grey, with a slight purple tinge, *at the extreme base transparent*; cilia pale grey.

Occurs in grassy places among fern in July, at Dartford Heath, near Manchester, and Torwood, Stirlingshire.

3. **Vacculella**, F. v. R. Ent. Ztg. 1842, p. 213; H.-S. Tin. pl. 36. f. 247. — *Taurella*, Hüb. — *Chenopodiella*, Sta.; Step.? Alis anticis grisco-fuscis vel obscure-ochreis, saturate fusco-suffusis, *fascia obsoleta saturatiore pone medium, in plica ut macula distinctiore*; alis posticis dilute-griseis, vix purpureo-tinctis, *dimidio basali hyalino*. Capillis saturate ochraceo-fuscis. *Antennis non incrassatis*. Exp. al.  $5\frac{1}{2}$  lin.

Hairs of the head and face dark ochreous-fuscous. *Antennæ* dark fuscous, *not thickened*. Anterior wings greyish-fuscous or dingy ochreous, suffused with dark fuscous, and *beyond the middle there is a faint appearance of an indistinct dark fascia, of which at any rate a spot on the fold is visible*; cilia greyish-fuscous. Posterior wings pale grey, with a slight purplish tinge, *nearly the whole of the basal half transparent*; cilia greyish.

A rare species, found in houses in July. How it gets there is a mystery!

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#### Genus VI. **EUPLOCAMUS.**

EUPLOCAMUS, Lat. G. C. et I. iv. 223 (1809); Step.; Curt.; Zell. *Euplocamus* p., Dup. *Scardia* p., Treit.

Caput superne ac in fronte hirsutum. Ocelli nulli. Antennæ crassiusculæ, ♂ pectinatæ vel piloso-fasciculatæ. Palpi maxillares plicati,

sex-articulati. Palpi labiales articulo secundo infra fasciculato-piloso, ultimo tenui adscendente. Haustellum breve. Alæ anteriores: e cellula discoidali venæ 4 in marginem costalem prodeunt.

Head above and in front hairy. Ocelli none. Antennæ shorter than the anterior wings, in the ♂ either pectinated or with tufts of fine hairs (the latter is the case in the only British species known). Maxillary palpi folded, six-jointed. Labial palpi with the second joint beneath with a tuft of hair, third joint slender, erect. Tongue short. Wings oblong, with rather short cilia. From the discoidal cell of the anterior wings four veins run to the hinder margin.

In this genus occur some of the largest species of *Tineina*; the only one yet detected in the country is however of moderate size. The larvæ feed in fungi.

1. **Boleti**, Fab. E. S. iii. 2. 26 (1794); Zell. E. Z. 1846. p. 178. —*Mediella*, Och.; Treit.; Step.; Curt. B. E. fo. 591; H.-S.—*Choragella*, W. V.? Alis anticis dilute ochreis fusco-nebulosis saturate fuscopunctatis, nebula basali costæ plicam tangente, macula costali ei contigua, macula costali pone medium, cum altera majore in medio dorsi fere connexa, maculisque duabus parvis costalibus apicem versus fuscis, punctis quatuor oblongis disci marginem posticum versus saturate fuscis: ciliis saturate fuscis, maculis quatuor dilute ochreis. Exp. al. 12 lin.

Head and face ochreous, mixed with fuscous. Palpi pale ochreous, mixed with fuscous; terminal joint pale ochreous, with a ring at the base and another before the apex, dark fuscous. Antennæ fuscous. Anterior wings pale ochreous, clouded with fuscous and spotted with dark fuscous; at the base of the costa is a large fuscous cloud reaching to the fold, immediately beyond it is a fuscous blotch on the costa, and beyond the middle is another fuscous blotch on the costa, which almost appears connected with a large fuscous blotch on the middle of the inner margin; on the costa towards the apex are two small fuscous spots, and on the disc before the hinder margin are four oblong dark fuscous spots placed on the nervures; cilia dark fuscous, with four pale ochreous patches; one on the costa, one in the middle, and one at the bottom of the hinder margin, and the fourth at the anal angle. Posterior wings rather dark fuscous, with paler cilia.

Not common; occasionally found in the south of England. The larva feeds in fungi. The perfect insect appears in July.

#### Genus VII. **TINEA.**

**TINEA**, Zell. L. E. vi. 84 et 100 (1852); Step.; Curt.; Latr.—*Tinea* p., Haw.; Dup.—*Tinea* et *Scardia* p., Treit.; Zett.

Caput superne et in fronte hirsutum. Ocelli nulli. Antennæ cras-



siusculæ, ♂ ciliatæ. Palpi maxillares plicati, 5-articulati. Palpi labiales cylindrici pilosi, *articuli secundi apice supra setis una pluribus instructo*. Haustellum subnullum. Alæ anteriores oblongo-ovate, raro elongatæ; *posteriores ovatæ squamatæ longe ciliatæ*; anteriores: e cellula discoidali venæ 5 in marginem costalem prodeunt.

Head above and in front hairy. Ocelli none. Antennæ moderately thick, not so long as the anterior wings, in the ♂ slightly ciliated. Maxillary palpi folded, five-jointed. Labial palpi cylindric, hairy, *the apex of the second joint furnished above with one or more bristles*. Tongue hardly perceptible. Anterior wings oblong-ovate, rarely elongate (*T. nigripunctella*); *posterior wings ovate, clothed with scales, with long cilia*. From the discoidal cell of the anterior wings five veins run into the costa, and five terminate on the margins below the apex.

The maxillary palpi do not appear to be developed in *Cochyli-della*, *biselliella*, or *nigripunctella*; *T. biselliella* even shows a slight difference in the neururation of the wings. The small species *T. bistrigella*, etc., have only *four* veins from the discoidal cell to the costa, and *four* others terminating on the margins below the apex of the anterior wings.

The perfect insects of this genus appear in summer, those which occur in houses are liable to be found throughout the year; they fly but for short distances, but run very nimbly and keep their antennæ in a continuous state of agitation. Some of them are gaily coloured, but most of the species generally found in houses are of sombre hues. The larvæ feed on various kinds of substances, cloth, horse-hair, feathers, etc., cork, fungi, decayed wood. Many of them, like *T. pellionella*, construct portable cases in which they reside, exerting only the three first segments for the purpose of locomotion; others, like *T. tapetzella*, construct covered galleries of the substance on which they are feeding, thus destroying much more than they actually consume; others, like *T. biselliella*, do not construct cases nor have regular galleries, but spin together portions of the substance they are eating for the purpose of a cocoon, preparatory to assuming the pupa state. Those which feed on fungi and decayed wood, form galleries in the solid substance, which they line with silk.

A great deal has been written on these insects with a view of preventing their ravages, but hitherto with little success. Where they once gain a footing it is very difficult to get rid of them; and I have myself been annoyed by *T. biselliella* establishing itself in the linings of sofa, chairs, etc., and in the carpets. An occasional baking of the furniture will help to keep their numbers in check.

These insects became known from their ravages at a very early

period, and are on several occasions mentioned in Scripture. St. James, in his General Epistle, chap. v. ver. 2, says "*your garments are moth-eaten*," thus showing a similarity of habit, probably arising from the same species as those we still suffer from.

Of this genus we have thirty-one species in this country, which may be arranged in the following table (many others occur on the continent).

- a*. Anterior wings with a hyaline spot on the disc. Species 1-4.
- a a*. Anterior wings with no hyaline spot on the disc.
  - b*. Anterior wings dark, with large whitish spots on the costa and inner margin.
  - c*. Large-sized species. Species 5.
  - c c*. Small-sized species. Species 17.
  - b b*. Anterior wings with the basal half black, apical half whitish. Species 6.
  - b b b*. Anterior wings whitish, with an angulated black fascia. Sp. 7.
  - b b b b*. Anterior wings pale, with a dark streak or streaks from the base. Species 8 and 9.
  - b b b b b*. Anterior wings with a mottled appearance. Species 10-16.
  - b b b b b b*. Anterior wings nearly unicolorous, with a few dark spots on the disc. Species 18-23.
  - b b b b b b b*. Anterior wings ochreous.
    - d*. Unicolorous. Species 24 and 31.
    - d d*. With a dark spot at the anal angle. Species 27.
    - d d d*. With numerous marginal dark spots. Species 26.
    - b b b b b b b b*. Anterior wings unicolorous, violet-brown. Sp. 25.
    - b b b b b b b b b*. Anterior wings dark, with pale fasciæ or transverse spots. Small species. Species 28-30.

1. **imella**, Hüb. 307 (1816); Zell.; Dup.; H.-S. *Alis anticis nitidis fuscis, squamis sparsis dilute ochreis, costa ipsa apicem versus dilute ochrea, macula disci fere in medio pallida.* Exp. al.  $6\frac{1}{2}$  lin.

Head and face ochreous. Palpi pale ochreous. Antennæ fuscous. Anterior wings shining fuscous, with a few pale ochreous scales, *the extreme costa from before the middle to near the apex pale ochreous*; on the disc nearly in the middle is a small pale spot; cilia fuscous, at the anal angle pale ochreous. Posterior wings pale greyish-fuscous, with greyish-ochreous cilia.

A scarce species; appearing in June and August.

2. **ferruginella**, Hüb. 348 (1816); Treit.; Dup.; Zell.—*splendella*, Hüb.—*ustella*, Haw.; Step.—*obviella*, W. V.?—*mendicella*, Hüb.? *Alis anticis saturate fuscis, vix purpurascente tinctis, postice griseo-ochreo irroratis, dorso dilute ochreo, macula disci, paullo post medium, albida.* Exp. al.  $5\frac{1}{2}$  lin.

Head and face pale ochreous. Palpi pale greyish-ochreous. Antennæ dark fuscous. Anterior wings dark fuscous, with a slight pur-

plish tinge, posteriorly irrorated with pale greyish-ochreous; the inner margin, nearly to the fold, pale ochreous; on the disc, a little beyond the middle, is a whitish spot; cilia greyish-ochreous, varied with fuscous. Posterior wings whitish-grey, towards the apex darker, with paler cilia.

Not uncommon; the perfect insect appearing in June, July, and October; found abundantly in 1849 by Mr. Scott, in a coal-mine near Glasgow.

3. **rusticella**, Hüb. 339 (1816); Treit.; Dup.; Zell.—*saturella*, Haw.—*vestianella*, Step.—*lævigella*, W. V. P. Alis anticis saturate grisco-fuscis, vix purpurascente tinetis, dilute ochreo irroratis, macula disci ante medium dilute ochreo. Exp. al. 6–8 lin.

Head and face ochreous. Palpi pale ochreous; second joint externally, and the basal half of the terminal joint dark fuscous. Antennæ greyish-fuscous. Anterior wings dark greyish-fuscous, with a very faint purplish tinge, irrorated with pale ochreous, with a pale ochreous spot on the disc, near the costa before the middle; cilia pale ochreous, somewhat varied with fuscous. Posterior wings pale grey, with paler cilia.

A rather common species in houses, outhouses, etc. Mr. Weaver has taken several specimens of a variety (?) with an ochreous spot at the anal angle running into the cilia; these he found in fir-woods, Perthshire.

4. **monachella**, Hüb. 143 (1801); Treit.; Sta.; Zell.—*mediella*, Fab. P. Alis anticis saturate fuscis, *macula costali magna alba, dorsum versus indentata*, punctis minutis apicem versus albis. Exp. al. 5½ lin.

Head and face white. Palpi white; second joint externally dark fuscous. Antennæ fuscous. Anterior wings rather dark fuscous, with a large irregular white blotch on the costa, extending from before the middle to the apex, reaching half across the wing, but with a rounded indentation in its side towards the inner margin; the base of the costa, and the margin of this white blotch, are dark purplish-fuscous; towards the apex of the wing are some small white spots; cilia dark purplish-fuscous. Posterior wings pale grey, with paler cilia.

Occurs in the Cambridgeshire fens; appearing in May and August.

5. **fulvimitrella**, Sod. Bull. N. M. 1830. 74. pl. 1. f. 6; Treit.; Dup. xi. pl. 312. f. 1; Zell.; H.-S.—*rupella*, Haw.; Step.—*Bohemanella*, Zett. Alis anticis saturate purpureo-fuscis, maculis quatuor conspicuis albidis, duabus dorsi, duabus costæ, squamis sparsis disci albidis. Exp. al. 8 lin.

Head and face bright ochreous. Palpi pale ochreous; second joint externally and the base of the terminal joint dark fuscous. Antennæ dark fuscous. Anterior wings dark purplish-fuscous, with four conspicuous whitish spots, of which two, somewhat triangular, on the inner

*margin* (one near the base, the other a little beyond the middle), and two obliquely beyond them on the *costa*, of which the first is rather small, pointing posteriorly; the second is larger, pointing towards the anal angle; on the disc are several scattered whitish scales; cilia dark purplish-fuscous, the tip of the apex whitish, and frequently some patches at the extremity of the hinder margin whitish. Posterior wings greyish-purple, with paler cilia.

Occasionally met with on the trunks of trees in June.

6. **tapetzella**, Lin. S. N. 536. 253 (1758); Cl.; Fab.; Hüb. Tin. 91; Haw.; Treit.; Step.; Dup.—*tapezana*, Fab.; Lat.—*tapeziella*, Zell. Alis anticis dimidio basali nigro, apicali albo grisco-nebuloso, puncto minuto ad angulum analem, punctisque duobus apicis nigris. Exp. al. 9 lin.

Head and face white. Palpi white; second joint externally dark fuscous. Antennæ fuscous. Anterior wings black from the base to the middle, then white; on the inner margin the black terminates very abruptly a little before the middle; on the costa, where it is continued further, the termination is less abrupt; the apical portion of the wing is clouded with dark grey, and there is a small black spot at the anal angle, and two or three at the apex of the wing; cilia whitish, at the apex dark grey. Posterior wings pale grey, with whitish-grey cilia.

A common species, frequently occurring in carriages, the larva feeding on the lining under a gallery constructed from the lining; the perfect insect appears in June and July.

7. **arcella**, Fab. G. I. 295 (1776); Schr.; Zell.—*nivecella*, Fab.—*repandella*, Hüb.; Dup. xi. pl. 289. f. 9.—*clematea*, Haw.—*clematella*, Step.; Fab.? Alis anticis albis puncto dorsi basali, stria costæ basali, fascia media latiuscula angulata, punctisque duobus costæ apicem versus saturate fuscis. Exp. al. 6½ lin.

Head and face white. Palpi white; second joint beneath grey. Antennæ greyish-fuscous. Anterior wings white, with a small spot at the base of the inner margin, and a costal streak at the base dark fuscous, in the middle is a moderately broad angulated dark fuscous fascia (the angulation is near the costa and is rather produced posteriorly on the disc); on the costa before the apex are two dark fuscous spots, and the apical portion of the wing has several fuscous clouds; cilia whitish, at the extreme apex fuscous. Posterior wings grey, with paler cilia.

Not rare in the south of England; it is probably double-brooded; I have met with it in old hedges in June, July, and August.

8. **picarella**, Lin. F. S. 1389 (1761); Cl.—*Rigaëlla*, Sod.; Treit.; Evers.—*Riganella*, H.-S. Tin. pl. 44. f. 299; Zell.—*Acerella*, Treit. Alis anticis albis vitta longitudinali ex basi juxta costam, postice paululum curvata, in apicem desinente nigra, maculis parvis dorsum versus nigris. Exp. al. 7½ lin.

Head, face, and palpi white, or whitish. Antennæ pale fuscous. Anterior wings white, *with a black streak from the base near the costa, continued*, with a slight curve beyond the middle, *to the apex*; on the costa before the middle are two small white spots, and beyond the middle is a larger triangular white spot, in which, on the extreme costa, are three or four small black spots; at the base, on the inner margin, is an irregular black spot pointing upwards, beyond it are three small black spots obliquely placed; one on the inner margin, one below, and one above the fold; a small black spot lies on the inner margin before the anal angle, and above the anal angle is an oblong black streak along the hinder margin; cilia white, varied with dark fuscous or black. Posterior wings rather dark grey, with paler cilia.

A single specimen of this conspicuous insect is in Mr. Edleston's collection.

9. **arcuatella**, Sta.—*picarella*, Hüb. Tin. 219; Treit.; Dup.; Zett.; Evers.; II.-S.; Zell. Alis anticis albidis, fusciscente suffusis, *striis duabus ex basi saturate fuscis, altera dorsum versus pone medium desinente, altera costam versus ante medium desinente*, macula costali pone medium cum stria disci confluyente, saturate fusca. Exp. al.  $9\frac{1}{2}$  lin.

Head, face, and palpi pale ochreous. Antennæ grey. Anterior wings whitish, much suffused with pale fuscous *with two dark fuscous streaks* from the base, one rather sinuated almost in the fold terminating beyond the middle, *the other near the costa terminating before the middle*; on the costa, beyond the middle, is a dark fuscous spot, below which is a dark fuscous streak on the disc which is prolonged in a curved direction and terminates on the costa before the apex; hinder margin spotted with dark fuscous; cilia alternately white and fuscous. Posterior wings greyish-fuscous, with paler cilia.

Several specimens have been taken at Rannoch, in Perthshire, in the summer, by Mr. Hodgkinson and Mr. Weaver. The larva feeds in fungi in September.

10. **corticella**, Curt. B. E. fo. 511 (1834); Zell. (L. E. vi.)—*emortuella*, Zell. (Isis 1839).—*granella*, var., Dup.—*concinella*, Hüb.?—*clonacella*, II.-S.? Alis anticis albidis, fusciscente paullulum suffusis, punctis parvis costæ 4 vel 5 saturate fuscis, *triangulo in medio dorsi ochreo-fusco* (apice suo supra dorsum), punctis minoribus dorsi marginisque postici saturate fuscis; *capillis albis*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face white. Palpi internally whitish, externally dark fuscous; tip of the terminal joint entirely whitish. Antennæ pale grey. Anterior wings whitish, rather suffused with pale fuscous, especially towards the costa; along the costa are several small dark fuscous spots, of which the largest is rather beyond the middle; nearly opposite, *on the middle of the inner margin, standing on its apex, is an ochreous-fuscous triangular spot*; on the inner margin towards the base is frequently a dark fuscous spot, and there is another at the anal

angle; hinder margin interruptedly dark fuscous; cilia ochreous-fuscous, with some whitish patches. Posterior wings dark greyish-fuscous, with paler cilia.

Not common; the perfect insect appears in May and August. The larvæ were found by Mr. Thomas Desvignes in fungi on the hornbeams in Epping Forest in June and July.

11. **parasitella**, Hüb. Tin. 16 (1801); Haw.; Treit.; Step.; Dup.; Evers.; H.-S.; Zell.—(*carpinetella*, Sta. Cat.) Alis anticis albidis, *saturate-fusco marmoratis*, punctis quatuor vel quinque costæ saturate fuscis, secundo ante, et quarto pone medium cum puncto dorsali saturate-fusco connexis, margine postico apiceque costæ saturate-fusco-punctatis; *capillis ochreis*. Exp. al. 9 lin.

*Head* and face *ochreous*. Palpi internally pale ochreous, externally dark fuscous; tip of the terminal joint entirely pale ochreous. Antennæ greyish-fuscous. Anterior wings whitish, *chequered and spotted with dark fuscous*; along the costa are four or five dark fuscous spots, one at the base, one before the middle connected across the wing with a dark fuscous spot on the middle of the inner margin, one nearly in the middle, one beyond the middle likewise connected with the spot on the middle of the inner margin, and also with a spot at the anal angle; the hinder margin and apex of the costa are spotted with dark fuscous; cilia, at first fuscous, the ends pale ochreous, interrupted by four fuscous patches. Posterior wings dark grey, with a slight purple tint, with dark grey cilia.

Not an uncommon species; the perfect insect appears in May and June. The larva feeds on fungi (and decayed wood?) during the winter.

12. **Granelia**, Lin. S. N. 537. 259 (1758); W. V.; Fab.; Hüb. Tin. 165; Haw.; Treit.; Step.; Dup.; Zell. Alis anticis *albis*, maculis numerosis saturate-fuscis nigrisve, quarum septem costæ (*una basali plicam tangente et supra eam producta*, una abbreviata ante, una majore pone medium, maculis quatuor costæ apicem versus minoribus), macula parva dorsi juxta basim, alteraque majore plicæ ante medium saturate fuscis; *capillis albis, albidisve*. Exp. al.  $4\frac{1}{2}$ –7 lin.

*Head* and face *white, or whitish*. Palpi white; second joint externally fuscous. Antennæ fuscous. Anterior wings *white*, with numerous dark fuscous almost black spots, of which seven are on the costa; *the first at the base reaching to the fold and rather produced along it*, the second before the middle and rather short, the third and largest beyond the middle prolonged obliquely and reaching half across the wing, the fourth and fifth are very small, the sixth is generally connected with the seventh which lies in the apex of the wing; on the inner margin near the base is a small dark fuscous spot, and a larger one lies on the fold before the middle; cilia dark fuscous, variegated with white. Posterior wings greyish-fuscous, with pale grey cilia.

This beautiful insect is abundant in granaries (throughout the globe?); the larva is stated to reside in a case connecting several grains of corn together by means of its silken threads; its ravages have been most observed in September and October (but I think a second brood feeding in July extremely probable); the perfect insect appears in June.

13. **cloacella**, Haw. L. B. 563 (1829); Step.; Zell.—*granella*, var., Dup. xi. pl. 289. f. 13 et 14. Alis anticis albido-ochreis, fusciscentis paululum suffusis, maculis conspicuoribus costæ saturate fuscis tribus (*una basali plicam non tangente*, una abbreviata ante medium, *altera elongata cum stria longitudinali disci connexa*, pone medium) maculis duabus parvis, tertiæque majore apicem versus; macula plicæ ante medium saturate fusca, margine postico interrupte saturate fusco; *capillis dilute-ochreis*. Exp. al.  $6\frac{1}{2}$  lin.

*Head and face pale ochreous.* Palpi whitish; second joint externally fuscous. Antennæ fuscous. Anterior wings whitish-ochreous, somewhat suffused with pale fuscous, and with several dark fuscous spots, of which, three on the costa are very conspicuous, *one at the base not reaching to the fold*, a short one before the middle, and a *somewhat elongated one beyond the middle connected with a longitudinal streak on the disc*, beyond this are two smaller fuscous spots, and a larger dark fuscous spot lies towards the apex; on the fold before the middle is a dark fuscous spot; the hinder margin is interruptedly dark fuscous; cilia dark fuscous, with pale ochreous patches. Posterior wings dark grey, with a slight purplish tinge, with paler cilia.

Abundant throughout the country, frequenting old hedgerows in May and August. The larva feeds in fungi and decayed wood, and probably does not do us any mischief.

14. **uricolella**, Sta. Cat. p. 7 (1849).—*granella*, var., Dup. xi. pl. 289. f. 12.—*cloacella*, var. *b.*, Zell. Alis anticis griseo-ochreis, maculis saturate fuscis, tribus costæ conspicuoribus, *una basali plicam non tangente*, una ante medium, altera majore pone medium *in disco postice non producta*, macula plicæ ante medium saturate fusca, margine postico apiceque costæ saturate fusco-punctatis; *capillis dilute ochreis*. Exp. al.  $5\frac{1}{2}$ – $6\frac{1}{2}$  lin.

*Head and face pale ochreous.* Palpi whitish; second joint externally fuscous. Antennæ pale grey. Anterior wings greyish-ochreous, with dark fuscous spots, of which three on the costa are conspicuous, *one at the base not reaching to the fold*, one before the middle, and a larger one beyond the middle reaching nearly half across the wing, *but not produced posteriorly on the disc*; on the fold before the middle is a dark fuscous spot; hinder margin and apex of the costa interruptedly dark fuscous; cilia fuscous, interrupted with pale ochreous patches. Posterior wings grey, with a slight purplish tinge, with paler cilia.

Occurs in the same places and at the same times as the preced-

ing (*T. cloucella*), of which it is perhaps only a variety. The discovery of the larva must decide this point.

15. **Cochylidella**, n. sp. Alis anticis griseo-ochreis, paullulum fusco-suffusis, *nebula in medio plicæ albida, in qua macula curvata fusca ex medio dorsi*, nebula obsoletiore disci pone medium albida, macula abbreviata costæ paullo post medium, et margine postico apiceque costæ saturate fuscis. Exp. al. 6 lin.

Head and face pale yellowish. Palpi pale grey. Antennæ fuscous. Anterior wings greyish-ochreous, slightly suffused with fuscous, with a *whitish blotch in the middle of the fold, interrupted by a dark fuscous curved spot from the middle of the inner margin* (like the typical marking of a *Cochylis*); on the disc beyond the middle is another indistinct whitish spot, and on the costa a little beyond the middle is a rather short dark fuscous spot; hinder margin and apex of the costa dark fuscous; cilia pale greyish-ochreous. Posterior wings rather dark grey, with the cilia a little paler.

A single specimen in the collection of Mr. Douglas, taken by him near Sanderstead in June, 1852.

16. **albipunctella**, Haw. L. B. 564 (1829); Stcp.; Sta.; Zell. Alis anticis nitidis *saturate fuscis, punctis numerosis albidis*, duobus costæ ante, tribus costæ pone medium, uno dorsi ante, duobus sæpe connexis dorsi pone medium, atomis disci sparsis albidis; capillis albidis. Exp. al. 5 lin.

Head and face whitish. Palpi whitish; second joint externally fuscous. Antennæ pale fuscous. Anterior wings shining, *dark fuscous, with numerous whitish spots*, of which two are on the costa before the middle, and three or four on the costa beyond the middle, one on the inner margin before the middle, and two beyond the middle frequently united; on the disc are several whitish atoms; cilia dark fuscous, with two whitish patches. Posterior wings greyish-fuscous, with paler cilia.

Scarce; occurs in June at Hurstpierpoint, Sussex; taken by Mr. Weir.

17. **Caprimulgella**, (v. Heyd.) Sta. Supp. Cat. p. 2 (1851); H.-S. Tin. pl. 44. f. 303; Zell. Alis anticis saturate violacco-fuscis, fascia subobliqua ante medium, dorsum versus latiore, et *maculis costæ dorsique dilute luteis*. Exp. al. 5½ lin.

Head and face dark ochreous. Palpi pale grey. Antennæ dark fuscous. Anterior wings dark violet-fuscous, *with pale yellowish spots on the costa and inner margin*, of which the first is a spot on the inner margin near the base, then follows a rather oblique fascia before the middle, broadest on the inner margin; beyond are two small spots at the costa and one at the anal angle; cilia dark greyish-purple. Posterior wings grey, with grey cilia.

A scarce species; I have seen only three British specimens,



one of which was taken by Mr. Wilkinson, on a paling near Hackney, in July; the larva feeds in decayed wood (*v. Heyden*).

18. **misella**, Zell. Isis, 1839, p. 184; II.-S. Tin. 41. f. 277.—*Knockiella*, Sta.; Hüb. ? Alis anticis *luteo-brunneis*, *lutescente marmoratis*, macula distincta disci pone medium saturate fusca, interdum macula elongata obsoleta in medio plicæ saturate fusca, ciliis fuscis dilute-ochreo maculatis; alis posticis griseis, *purpureo-linctis*. Exp. al. 6–7 lin.

Head and face ochreous-fuscous. Palpi pale grey, externally fuscous. Antennæ fuscous. Anterior wings *yellowish-brown*, *marbled with pale yellow*, with a distinct dark fuscous spot on the disc beyond the middle, and frequently an elongate dark fuscous, rather obsolete spot in the middle of the fold; cilia alternately fuscous and pale ochreous. Posterior wings grey, *with a purple gloss*; cilia grey.

Not common; the perfect insect appears in June and August. I have met with it in old hedges.

19. **fuscipunctella**, Haw. L. B. 562 (1829); Step.; Sta.; H.-S. Tin. 44. f. 300.—*spretella* (Sta.); Zell.; W. V. ?—*fuscella*, Linn. ? Alis anticis *dilute griseo-fuscis*, *fusco valde suffusis*, macula dorsi basin versus, punctis tribus disci saturate fuscis, *ciliis costalibus fuscis dilute-ochreo variegatis*, marginis postici dilute griseo-ochreis; *alis posticis cinereis*. Exp. al. 6–7  $\frac{1}{2}$  lin.

Head and face ochreous-fuscous. Palpi pale ochreous, externally fuscous. Antennæ fuscous. Anterior wings *pale greyish-ochreous*, *much suffused with fuscous*, with a dark fuscous blotch on the inner margin near the base, and a spot on the disc, one rather posterior to it on the fold, before the middle, and a larger spot on the disc beyond the middle dark fuscous; *cilia, at the apex of the costa fuscous, varied with pale ochreous*; at the hinder margin pale greyish-ochreous, with a dark fuscous line. *Posterior wings whitish-grey*, with paler cilia.

Not uncommon in houses; probably a general feeder, I have bred it from dry peas; the perfect insect appears in June and September.

20. **pellionella**, Linn. S. N. 536. 254 (1758); Fab.; Hüb. 15; Haw.; Treit.; Step.; Dup.; Zell.; H.-S.—*sarcitella*, Linn. ?—*Zoolegella*, Scop. ? Alis anticis *griseo-ochreis*, punctis tribus disci obsoletis fuscis, macula dorsi basin versus obsoletiore, *ciliis dilute griseo-ochreis*; *alis posticis cinereis*. Exp. al. 5  $\frac{1}{2}$ –6  $\frac{1}{2}$  lin.

Head and face ochreous, slightly mixed with fuscous. Palpi and antennæ fuscous. Anterior wings *greyish-ochreous*, with three rather obsolete fuscous spots, one on the disc, and one rather beyond it on the fold before the middle, and one on the disc beyond the middle; there is sometimes a faint dark spot on the inner margin near the base; *cilia unicolorous, pale greyish-ochreous*. *Posterior wings whitish-grey*, with whitish-ochreous cilia.

An abundant species in houses, found nearly throughout the

year; the larva constructs a portable case of the substance on which it is feeding; it appears very partial to feathers.

21. **pallescentella**, Sta. Sup. Cat. p. 2 (1851). Alis anticis cinereis, *striis duabus ex basi* (altera abbreviata costam versus, altera clongata plicæ) *fuscis, punctis duobus pone medium disci albis.* Exp. al. 7 lin.

“Like a large *Pellionella*, but with two brown streaks from the base of the wing; one along the costa, which soon ceases, the other in the fold extending nearly to the anal angle; beyond the middle are some brown scales on the disc, and among them two white spots, having an ocellated appearance; cilia pale cinereous, with some brown scales round the extreme apex of the wing.”

The above description is copied from my Sup. Cat.; not having had an opportunity of again examining this species, of which I believe two or three other specimens have occurred in Liverpool.

22. **flavescentella**, Haw. L. B. 564 (1829); Step. Alis anticis *dilute ochreis fusco-irroratis, punctis tribus disci saturate fuscis, basique costæ saturate fusca.* Exp. al.  $5\frac{1}{2}$  lin.

Head and face pale ochreous. Palpi pale ochreous, externally fuscous. Antennæ fuscous. Anterior wings *pale ochreous, dusted with fuscous*, with three dark fuscous spots, one on the disc, one beyond it on the fold before the middle, and one on the disc beyond the middle; the extreme base at the costa is dark fuscous; cilia pale ochreous. Posterior wings pale grey, with paler cilia.

In the collections of Mr. Shepherd and Mr. Curtis; I have only seen two specimens.

23. **Lapella**, Hüb. Tin. 232 (1801).—*Lappella*, Haw.; Step.; Dup.; H.-S.—*tripunctella*, Don.—*ganomella*, Treit.; Zell. Alis anticis *dilute ochreis*, postice grisescente suffusus, *costa basin versus saturate fusca, puncto ovato plicæ, puncto parvo disci ante medium, punctoque rotundo disci pone medium nigris*, squamis paucis dorsi, angulum analem versus nigris. Exp. al.  $7-7\frac{1}{2}$  lin.

Head and face bright yellowish. Palpi dark fuscous; terminal joint pale yellowish. Antennæ dark fuscous. Anterior wings *pale ochreous*, rather suffused with pale grey towards the apex; *the basal half of the costa dark fuscous; on the fold before the middle is an oval black spot, above which, on the disc, is a smaller black spot, and beyond the middle of the disc is a round black spot*; there are a few black scales on the inner margin a little before the anal angle; cilia ochreous. Posterior wings grey, with a slight purple gloss, with pale greyish-purple cilia.

Not uncommon in old hedges, in May and August.

24. **biselliella**, Hummel, Ess. Ent. 3. 13. p. 6-13 (1823); Zell.; H.-S.—*crinella*, Treit.; Dup.; Zell.—*destructor*, Step.—*flavifrontella*, W. V.?; Fab.? Alis anticis *nitidis dilute ochreis immaculatis*, costam versus juxta basin fusco-tinctis. Exp. al.  $6\frac{1}{2}-8$  lin.

Head and face reddish-ochreous. Palpi pale ochreous. Antennæ pale greyish-ochreous. Anterior wings *shining pale ochreous, immaculate*; towards the costa, near the base, slightly tinted with fuscous; cilia pale ochreous. Posterior wings whitish, with pale ochreous cilia.

A very abundant and destructive species, most partial to horse-hair linings of chairs, etc. The larva, which is dirty-whitish, and makes no case, may be found nearly throughout the year.

25. **simplicella**, H.-S. Tin. 47. f. 322 (1851); Zell.—*angusticostella*, Sta. Alis anticis *fuscis*, lutescente-tinctis, dorsum versus dilutionibus, *ipsa costa pone medium anguste lutea*. Exp. al. 6 lin.

Head and face ferruginous. Palpi pale greyish-ochreous; second joint externally fuscous. Antennæ dark fuscous. Anterior wings *fuscous*, with a slight yellowish tinge, paler towards the inner margin, and with *the costa beyond the middle narrowly pale yellowish*; cilia pale greyish-fuscous. Posterior wings greyish-purple, with the cilia at first fuscous, then whitish-grey.

Not common; occurs near Dover and near Mickleham in July.

26. **nigripunctella**, Haw. L. B. 564 (1829); Step.; Zell.—*parietariella*, H.-S. Alis anticis *lutescentibus*, punctis *numerosis nigrescentibus*, margines versus conspicuoribus. Exp. al.  $4\frac{1}{2}$  lin.

Head and face yellowish. Palpi pale grey. Antennæ greyish. Anterior wings *yellowish, with numerous blackish spots*, of which one in the middle of the costa sometimes united with one rather beyond it on the inner margin, and two opposite spots beyond the middle, also sometimes united into a fascia, are the most conspicuous; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale yellowish-grey. Posterior wings pale grey, with paler cilia.

This species, by no means common, has been taken in August, near Bristol. It is probably double-brooded, appearing also in May; the larva (according to Bruand) feeds in a case, on old fences.

27. **semifulvella**, Haw. L. B. 562 (1829); Step.; H.-S.; Zell. Alis anticis *dilute ochreis, rufo-ochreo suffusis*, præcipue apicem versus, costa basim versus rufo-fusca, *macula minuta dorsi, angulum analem versus, saturate fusca*. Exp. al. 8 lin.

Head and face deep ferruginous. Palpi pale greyish-ochreous, externally dark fuscous. Antennæ greyish-fuscous. Anterior wings *pale ochreous, suffused with reddish-ochreous*, especially towards the apex; the basal half of the costa is reddish-fuscous; *a small dark fuscous spot lies on the inner margin before the anal angle*; cilia reddish, externally pale ochreous. Posterior wings grey, with paler cilia.

Not common; found occasionally on palings and among old hedges in June.

28. **bistrigella**, Haw. L. B. 573 (1829); Step.; Sta.; Zell.—

*abalienella*, Zett.—*dilorella*, H.-S. Tin. 39. f. 266. Alis anticis *nitidis fuscis*, fascia recta ante medium, fascia interdum interrupta pone medium, punctoque posteriore disci (interdum obsoleto) *albis*; capillis saturate ochreo-fuscis. Exp. al. 4 lin.

Head dark ochreous-fuscous. Face pale ochreous. Palpi whitish. Antennæ fuscous. Anterior wings *shining fuscous*, with a straight white fascia before the middle, and a rather curved one beyond the middle, sometimes divided into two opposite spots; beyond the latter, on the disc, is a small whitish spot, sometimes however absent; cilia fuscous, with the tips whitish. Posterior wings pale grey, with paler cilia.

Not common; in woods among mixed underwood in June; in England and the south of Scotland.

29. **subammanella**, Sta. Cat. p. 9 (1849); Id. Ent. Trans. i. n. s. pl. 3. f. 8; Zell. Alis anticis *purpureo-fuscis*, fasciis duabus rectis luteo-albis (altera ante, altera paullo post medium) puncto luteo-albo, disci pone medium, ciliis purpureo-fuscis, ad apicem albidis. Exp. al. 3 lin.

Anterior wings *purplish-fuscous*, with two straight yellowish-white fasciæ, one before, the other rather beyond, the middle; beyond the latter is a small yellowish-white spot on the disc; cilia purplish-fuscous, at the apex of the wing whitish.

My specimen, taken in Scotland in July 1848, among mixed underwood, still remains unique.

30. **argentimaculella**, Sta. Cat. p. 6 (1849); Zell. Alis anticis *nitidis saturate fuscis*, fascia obliqua ante, maculis oppositis pone medium, punctisque apicem versus *argenteis*. Exp. al. 4 lin.

Head pale fuscous. Face and palpi white. Antennæ dark fuscous. Anterior wings *dark fuscous*, rather shining, with an oblique silvery fascia before the middle, sometimes interrupted on the fold; beyond the middle are two nearly opposite silvery spots; the costal spot is narrow, reaching half across the wing, the spot on the inner margin is somewhat triangular, hardly reaching to the fold; a little above the anal angle is a small round silvery spot, at the apex of the costa are two, and on the hinder margin are three silvery-white spots; cilia fuscous, tips whitish. Posterior wings greyish-fuscous, with paler cilia.

A scarce species; in the collections of Mr. Shepherd, Mr. Doubleday, and Mr. Douglas; the latter took his specimen on the Dartford Heath fence early in July.

31. **ochraceella**, Tengst. F. F.-F. 111. 15 (1848); Sta.; Zell.; Scott (Zool. 1853, 4075). Alis anticis *ochreis immaculatis*, ipsa costa ad basim nigrescente. Exp. al. 8-9 lin.

Head and face dark ochreous. Palpi dark fuscous; terminal joint dark ochreous. Antennæ greyish. Anterior wings *unicolorous-ochreous*; the edge of the costa at the base blackish; cilia rather paler. Posterior wings rather dark grey, with pale ochreous cilia.

Not uncommon, in the Black Forest, in Perthshire, in ants' nests, in July.

### Genus VIII. **LAMPRONIA.**

LAMPRONIA, Zell. L. E. vi. 84 et 180 (1852).—*Lampronia* p., Step.; Curt.—*Esperia* p., Hüb. V.—*Tinea* p., Zell. Isis, 1839.—*Lampros* p. et *Adela* p., Zett.

Caput postice hirsutum, *capillis in vertice ac fronte decumbentibus*. Ocelli nulli. Antennæ alis anterioribus breviores. Palpi maxillares 5-articulati, plicati. Palpi labiales cylindrici, pilosi; articuli secundi apice supra setis paucis instructo. Haustellum subnullum. Alæ anteriores oblongo-ovatae: e cellula discoidali venæ 5 in marginem costalem prodeunt; posteriores ovatae, ciliis breviusculis.

Head hairy behind, *on the crown and in front the hairs decumbent*. Ocelli none. Antennæ moderately thick, not pectinated or ciliated, shorter than the anterior wings. Maxillary palpi five-jointed, folded. Labial palpi cylindric, hairy; the apex of the second joint furnished above with a few bristles. Tongue hardly perceptible. Anterior wings oblong-oval. Posterior wings oval, with rather short cilia. From the discoidal cell of the anterior wings, five veins run into the costa.

The perfect insects of this genus are gaily coloured, and fly freely during the sunshine. The larvæ of only two of them are known, *L. prelatella* and *L. Rubiella*: these differ so much in habit that they would hardly be expected to occur in the same genus. That of *L. prelatella* feeds under the leaves of the wild Strawberry, in a flat case, shaped rather like the figure 8, which it applies by one of its flat sides to the under side of the leaf; it does not devour the leaf at the spot where it is applied, but takes the precaution to bring with it to its place of concealment a piece cut off from the edge of the leaf, or of some neighbouring leaf, which it then fastens to the under side of its case and consumes it at leisure; when the piece of leaf it has in store is large, the case is completely concealed between it and the leaf under which it reposes. This peculiarity in the habit of this larva was detected by Mr. Douglas, who found the larvæ at West Wickham Wood, in September. *L. Rubiella*, in the larva state, bores down the stem of the young shoots of the Raspberry, as recorded by Bjerkander in the 'Nova Acta Holmiæ,' in 1781, and recently observed by Messrs. Doubleday, Logan, and Westwood. The larva of *L. quadripunctella* feeds on the rose, but its habits have not yet been observed.

The species of this genus may be easily recognized thus:—

- a.* Anterior wings with indistinct, almost obsolete, pale spots. Sp. 1.  
*a a.* Anterior wings with a pale fascia before the middle, and pale opposite spots beyond the middle. Species 2 and 3.  
*a a a.* Anterior wings with numerous small distinct pale spots. Sp. 4.

1. **quadripunctella**, Fab. S. I. ii. 298. 52 (1781); Haw.; Step. —*morosa*, Zell.—*bipunctella*, Dup.? Alis anticis *obscure fuscis*, *macula triangulari dorsi punctoque parvo disci pone medium dilute luteis*, puncto costali posteriore dilutiore, interdum obsoleto. Exp. al. 6 lin.

Head and face greyish-fuscous. Palpi whitish. Antennæ fuscous. Anterior wings *dull fuscous, with a pale yellowish*, somewhat triangular spot on the inner margin beyond the middle, above which, on the disc, is a minute pale yellowish spot, and on the costa, rather beyond, is a very indistinct pale spot, in many specimens entirely wanting; cilia greyish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

Common among hedge-roses in June; flying freely in the early morning in the sunshine. The larva feeds in May(?).

2. **Luzella**, Hüb. Tin. 430 (1816); Step.; Curt. B. E. fo. 639; Zell.—*flavipunctella*, Haw.; Step. Alis anticis saturate *purpureo-fuscis*, fascia *obliqua* prope basin, maculis oppositis pone medium (*dorsali majore*) dilute luteis. Exp. al. 5½ lin.

Head dark purplish-fuscous. Face grey. Palpi pale grey. Antennæ fuscous. Anterior wings dark *purplish-fuscous*, with a pale yellow, *rather oblique* fascia near the base, attenuated on the costa, and sometimes interrupted; beyond the middle are two pale yellow opposite spots, of which *that on the inner margin is the larger*, and nearly triangular; cilia dark purplish-fuscous, the tips round the apex whitish. Posterior wings dark fuscous, with a slight purple tinge; cilia paler.

Not common; occurs near London (at West Wickham), in Devonshire, and in the north of England, in June.

3. **prælatella**, W. V. 320. 46 (1776); Fab.; Hüb.; Haw.; Step.; Zell.; H.-S.—*mæstella*, Hüb.—*Luzella*, Treit.; Frey. N. B. ii. 60. pl. 132.—*flavimitrella*, Dup.—*bifasciella*, Fab.? Alis anticis saturate fuscis, *vix purpureo-linctis*, puncto in medio bascos albido, fascia *fere recta* ante medium, maculis suboppositis pone medium (*costali majore*) albidis. Exp. al. 9 lin.

Head pale ochreous. Face whitish. Palpi whitish. Antennæ fuscous. Anterior wings dark fuscous, *with a slight purplish gloss*, with a small whitish spot in the middle of the base, *a nearly straight* whitish fascia before the middle slightly attenuated on the costa, and two whitish nearly opposite spots beyond the middle, of which *that on the costa is the larger* and posterior; cilia dark purplish-fuscous, externally whitish. Posterior wings greyish-fuscous, with a slight purplish gloss; cilia grey.

Common in woods in June. The larva feeds on *Geum urbanum* and *Fragaria vesca*, from September to May.

4. **Rubiella**, Bjerk. N. A. II. 1781. p. 20. pl. 1. f. 6-10.—*variella*, Fab.; Treit.; F. v. R.; Zell.—*marmorella*, Fab.—*corticella*, Haw.; Step.—*multipunctella*, Dup. Alis anticis nitidis fuscis luteo-punctatis, maculis duabus dorsi majoribus, quatuor costæ minoribus luteis. Exp. al. 5 lin.

Head ochreous-grey. Face and palpi dirty-yellowish. Antennæ fuscous. Anterior wings shining fuscous, with numerous yellow dots, and two conspicuous yellow spots on the inner margin, one before the middle, the other near the anal angle, and four smaller yellow spots on the costa; cilia fuscous, with the tips round the apex white. Posterior wings fuscous, with paler cilia.

Not uncommon among raspberry-bushes in June. The larva feeds under the fruit when young, hibernates without feeding, and in the spring bores down the stems of the young shoots.

Genus IX. **LAMPROSETIA**, n. g.

Capilli supernæ ac in fronte depressi, utroque latere supra oculos floculo usque ad verticem producto. Ocelli nulli. Palpi maxillares breves. Palpi labiales cylindrici, tenues. Antennæ alis anterioribus breviores. Haustellum subnullum. Alæ latiusculæ, mediocriter ciliatæ.

Head above and in front smooth, with hairs arising on each side above the eyes, reaching nearly to the crown. Ocelli none. Maxillary palpi short. Labial palpi cylindrical, slender. Antennæ shorter than the anterior wings. Tongue hardly perceptible. Wings rather broad, with moderate cilia.

This singular genus contains only one species; the larva of which feeds on "*capillaire*" (according to Bruaud).

1. **Verhuellevella**, v. Heyden (in litt.) Alis anticis nigrescentibus violaceo-tinctis; alis posticis dilute fuscis violaceo-tinctis. Exp. al. 4½ lin.

Head and face black. Palpi whitish. Antennæ black. Anterior wings blackish, with a slight violet gloss; cilia paler. Posterior wings pale fuscous, with a violet gloss, with grey cilia.

The only British specimens I have seen were taken by Mr. Allen Hill, near Bristol; they are in very bad condition. Von Heyden says of it, "very easily rubbed."

Genus X. **INCURVARIA**.

INCURVARIA, Haw. L. B. 559 (1829); Step.; Curt.; Zell. L. E. v.—

*Incurvaria* p., Dup.—*Tinea* p., Zell. Isis, 1839.—*Esperia* p., Hüb. V.—*Adela* p., Treit.; Zett.

Caput superne et in fronte hirsutum. Ocelli nulli. Antennæ alis anterioribus breviores. Palpi maxillares 5-articulati, plicati. Palpi labiales cylindrici, pilosi; articuli secundi apice supra setis paucis instructo. Haustellum breve. Alæ anteriores oblongo-ovatae; e cellula discoidali venæ 5 in marginem costalem prodeunt; posteriores ovatae (plerumque piloso-squamatae) ciliis breviusculis.

Head above and in front hairy. Ocelli none. Maxillary palpi five-jointed, folded. Labial palpi cylindrical, hairy; the apex of the second joint furnished above with a few bristles. Antennæ shorter than the anterior wings. Tongue short. Anterior wings oblong-ovate. Posterior wings ovate (generally with hair-scales), with shortish cilia. From the discoidal cell of the anterior wings five veins run into the costa.

The perfect insects delight to fly in the sunshine, and *I. muscalella* is generally abundant at the beginning of May. The larvæ live in cases formed of pieces of dead leaves, and feed on the fallen leaves during the autumn and winter. The larva however of *I. capitella* burrows down the stems of the young shoots of currant-bushes.

The species may be thus recognized:—

a. The posterior wings with elongate, hair-like scales.

b. Antennæ of the ♂ pectinated. Species 1, 2.

b b. Antennæ of the ♂ simple, slender. Species 3.

a a. The posterior wings with broad scales. Species 4, 5.

1. **muscalella**, Fab. Man. ii. 249. 91 (1787).—*maschlella*, Hüb.; Z. g. S.; Treit.; Step.; Curt.; Dup.; Zett.; Zell.—*muscula*, Haw.—♀ *spuria*, Haw.; Step.; Curt.—var. ♀ *rufimitrella*, West.; Sta. Alis anticis nitidis saturate brunneis, maculis duabus dorsi dilute luteis (♀ macula parva costali pone medium); capillis ferrugineis; antennis ♂ pectinatis. Exp. al. 6 lin.

Head and face ferruginous. Palpi pale grey. Antennæ (of the ♂ pectinated) dark fuscous. Anterior wings glossy dark brown, posteriorly with a few scattered yellowish scales, with two pale yellowish spots on the inner margin; one in the middle reaching to the fold, the other smaller at the anal angle (the ♀ has frequently a small pale yellowish spot on the costa beyond the middle); on the disc, beyond the middle, is a faint indication of a dark spot; cilia dark brown. Posterior wings greyish-fuscous, with a slight purplish gloss, with paler cilia.

Abundant in hedges in May. The larvæ feed in cases, on fallen leaves during the autumn and winter.

2. **pectinea**, Haw. L. B. 559 (1829).—*pectinella*, Step.; Curt.—*Zinckenii*, Zell.; H.-S.—*masculella*, var. Z. g. S.; Treit.—*masculella*, W. V.? Alis anticis nitidis fuscis, maculis duabus dorsi dilute al-



*bido-luteis*; *capillis fusciscentibus*; *antennis* ♂ *pectinatis*. Exp. al. 6 lin.

Head and face *dark ochreous-fuscous* (in the ♂ almost entirely fuscous). Palpi pale grey. Antennæ (of the ♂ *pectinated*) dark fuscous. Anterior wings *shining fuscous*, with rather a yellowish tint; on the inner margin are two *pale yellowish-white* spots, one nearly in the middle reaching to the fold, the other smaller, at the anal angle; on the disc, beyond the middle, is a faint indication of a dark spot; cilia fuscous. Posterior wings greyish-fuscous, with paler cilia.

Common among birches, at the end of April. The larvæ feed in cases on fallen leaves during the autumn and winter; when young they mine (according to Zeller) the leaves of the birch, in May and June, then descend by threads to the ground among the fallen leaves.

3. **tenuicornis**, n. sp. Alis anticis *unicoloribus fuscis*; alis posticis dilute grisco-fuscis; *capillis luteis*; *antennis tenuibus*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face *pale yellowish*. Antennæ slender, dark fuscous. Anterior wings *unicolorous fuscous*, with paler cilia. Posterior wings pale greyish-fuscous, with paler cilia.

Two specimens; one in Mr. Shepherd's and one in Mr. Tompkins's collection.

4. **Oehlmanniella**, Hüb. Tin. 184 (1801); Treit.; Step.; Curt.; Dup.; Zell.; Lienig; H.-S.—*Oehlmanni*, Haw. Alis anticis nitidis saturate fuscis, maculis duabus dorsi *maculaque minore costæ apicem versus* dilute luteis; *antennis* ♂ *non pectinatis*. Exp. al. 6 lin.

Head and face ochreous. Palpi whitish. Antennæ simple in both sexes, fuscous. Anterior wings dark glossy fuscous, with two pale yellowish spots on the inner margin, one before the middle, the other at the anal angle; *posterior* to the latter, is a *smaller spot on the costa*. In the ♀ this spot is confluent with one immediately preceding it, and therefore of larger size; cilia dark fuscous. Posterior wings pale grey, with a slight purplish tint, with paler cilia.

Not scarce; occurring in woods in June. The larvæ feed in flat cases under the fallen leaves during the winter.

5. **capitella**, Lin. F. S. 1374 (1761); Fab.; Haw.; Step.; Zell.; H.-S. Alis anticis saturate fuscis, *fascia obliqua costam versus attenuata* (interdum *costam non tangente*) ante medium, maculisque oppositis pone medium, dilute luteis. Exp. al.  $7\frac{1}{2}$  lin.

Head and face ochreous. Palpi pale grey. Antennæ fuscous. Anterior wings dark fuscous, with a slight purple gloss; before the middle is a *rather oblique* pale yellowish fascia, *much attenuated towards the costa, which sometimes it does not reach*; beyond the middle are two pale yellowish opposite spots, of nearly equal size, that on the inner margin somewhat triangular, that on the costa more rounded and

slightly posterior; cilia dark purplish-fuscous, the tips at the apex whitish. Posterior wings pale grey, with a slight purplish tinge; cilia pale grey.

Common among currant-bushes at the end of May. The larva is very injurious, eating the pith of the young shoots, and betrays its presence by the withering of the young leaves; when quite young it is dark red, but when full-fed it is greenish-white.

### Genus XI. MICROPTERYX.

MICROPTERYX, Zell. Isis, 1839. p. 185; Dup. Cat.—*Micropterix*, Hüb.—*Eriocephala*, Curt.—*Tinea* p., Haw.—*Adela* p., Treit.; Dup. L. F. xi.; Zett.—*Lampronia* p., Steph.

Caput superne hirsutum, orbitis superioribus late nudis. Ocelli distincti, ab oculis distantes. Palpi maxillares 6-articulati, plicati. Palpi labiales breves, cylindrici, pilosi. Antennæ alis anterioribus breviores. Haustellum breve. Alæ anteriores oblongo-ovatae; vena subcostalis ramos 4 in costam emittit. Posteriores ovatae, piloso-squamatae, ciliis medioeribus.

Head above clothed with long hairs, a broad space above each eye naked. Ocelli distinct, rather remote from the eyes. Maxillary palpi six-jointed, folded. Labial palpi short, cylindrical, hairy. Antennæ shorter than the anterior wings (in some of the species much shorter). Tongue short. Anterior wings oblong-ovate, glossy and rather transparent. Posterior wings ovate, rather transparent, clothed with long hair-formed scales, with moderate cilia.

The perfect insects fly in the sunshine; the smaller species among flowers in June; the larger species among birches, etc., in April and May. None of them appear to be double-brooded. The larvæ are still *entirely unknown* to us: this is the more unfortunate, as some of the species are so very similar in markings and habits, that till we ascertain their transformations we cannot feel *confident* of their distinctness.

The British species may be arranged in the following table:—

a. Small species.

b. Head ferruginous.

c. Anterior wings unicolorous in both sexes. Species 1.

c c. Anterior wings of the ♂ with silvery fasciæ. Species 2, 3.

b b. Head black. Species 4.

a a. Species of intermediate size. Head ferruginous. Species 5, 6.

a a. Species of larger size.

d. Head dark fuscous. Species 7, 10.

d d. Head cinereous. Species 8, 9, 11, 12.

1. **Calthella**, Lin. F. S. 1432 (1761); Fab.; W. V.; Schr.; Haw.;

Treit.; Step.; Dup.; Curt. B. E. fo. 761; Zell.; Sta.—*sulcatella*, Benth. Alis anticis viridi-aureis, paullulum purpureo-tinctis, *basi usque ad dorsum* purpurea; capillis ferrugineis. Exp. al. ♂  $3\frac{1}{2}$ ; ♀ 4 lin.

Head and face ferruginous. Antennæ dark fuscous. Anterior wings greenish-golden, slightly tinted with purple, with the entire base (from the costa to the inner margin) purple; cilia golden-grey. Posterior wings pale grey, towards the apex purplish, with greyish cilia.

Abundant in May and June, on the flowers of the *Caltha palustris*, and other *Ranunculaceæ*; also frequenting *Carices*.

2. **Aruncella**, Scop. F. C. 254. 660 (1763); Zell.; Sta.—*concinella*, Step.? Alis anticis auro-brunneis, *basi costæ* purpurea (♂ *puncto disci basim versus fasciaque tenui recta in medio argenteis*); capillis ferrugineis. Exp. al.  $3\frac{1}{2}$  lin.

Head and face ferruginous. Antennæ dark fuscous. Anterior wings golden-brown, *with the costa at the base* purple (in the male with a small silvery spot on the disc, not far from the base, and a straight, slender, silvery fascia in the middle); cilia golden-grey. Posterior wings grey, towards the apex purplish, with greyish cilia.

Not common; appears in June.

3. **Seppella**, Fab. G. I. 296 (1776); Haw.; Step.; Sta.—*Podevinella*, Dup.; Hüb.? Treit.?—*eximiella*, Zell.—♀ *Calthella*, Benth. Alis anticis viridi-aureis, *basi costæ* purpurea, (♂ *macula transversa ante medium, fascia subobliqua in medio, punctoque costam versus pone medium argenteis*); capillis ferrugineis. Exp. al. ♂ 3; ♀  $3\frac{1}{2}$  lin.

Head and face ferruginous. Antennæ dark fuscous. Anterior wings greenish-golden, *with the costa at the base* purple (in the male a little before the middle is a transverse silvery spot, not reaching either margin, and in the middle is a rather oblique silvery fascia, *beyond the middle is a small silvery spot* near the costa); cilia golden-grey. Posterior wings pale grey, towards the apex purplish, with pale grey cilia.

Common in June among various flowers; particularly partial to the *Veronica Chamædrys*.

4. **Mansuetella**, Zell. Schles. Schm. tausch-ber. 1844, p. 16; Sta. Alis anticis dilute viridi-aureis, *basi, fascia ante medium, apicemque obsolete* purpureis; capillis atris. Exp. al. 4 lin.

Head and face deep bluish-black. Antennæ black. Anterior wings pale golden-green, with the base, a fascia before the middle, and the entire apical portion of the wing, indistinctly purplish; cilia grey. Posterior wings greyish-purple, with greyish cilia.

Frequents woods in May and June; among *Mercurialis perennis* and other flowers.

5. **Allionella**, Fab. E. S. iii. 2. 321. 148 (1794); Zell.; Sta.—*amanella*, Hüb.; Treit.; Step.; Zett.—*Merianella*, Charp.; L. g. S.; W. V.?—var.? *amanella*, Dup. Alis anticis purpureis, fascia fere

recta prope basim, fascia obliqua in medio maculaque pone medium juxta costam dilute aurcis; capillis ferrugineis. Exp. al.  $4\frac{1}{2}$  lin.

Head and face ferruginous. Palpi pale grey. Antennæ black. Anterior wings purple, with a pale golden almost straight fascia not far from the base, a rather oblique pale golden fascia in the middle and towards the apex, a pale golden spot immediately below the costa; cilia greyish-purple. Posterior wings pale greyish-purple; cilia greyish.

Occurs in woods in May and June. Not common in the south of England; more frequent in the midland counties and the North. Taken abundantly among oaks and honeysuckle, near Birmingham, by the Rev. Mr. Simkiss.

6. **Tunbergella**, Fab. Man. ii. 253. 131 (1787).—*Thunbergella*, Gmel.; Vill.; Fab. E. S.?—*rubrifasciella*, Haw.; Sta.; Zell.—*Ander-schella*, Treit.; Dup.; Lienig.—*Hellwigella*, Step. Alis anticis dilute viridi-aurcis, macula costali, fascia abbreviata obliqua ante medium, fascia ad costam furcata pone medium, maculaque apicem versus rufescentibus; capillis ferrugineis. Exp. al.  $4\frac{1}{2}$  lin.

Head and face ferruginous. Antennæ dark fuscous. Anterior wings shining, pale golden-green, with reddish markings, viz. a spot on the costa near the base, an oblique fascia before the middle, not reaching to the inner margin, a fascia beyond the middle, furcate on the costa, and frequently connected with a spot towards the apex of the wing; cilia purplish-fuscous. Posterior wings pale grey, with a purplish tint towards the apex; cilia pale grey.

Not scarce, among beeches, in May.

7. **purpurella**, Haw. L. B. 571 (1829); Step.; Sta.; Zell.—*rubro-aurella*, Haw.? Step.?—*cicatricella*, Zett.? Alis anticis dilute aurcis purpureo-reticulatis, *venisque purpureis*, macula pone medium dorsi dilute aurca; *capillis saturate fuscis*; antennis *dimidio* alarum *antearum brevioribus*. Exp. al. 5 lin.

Head and face dark fuscous. Antennæ *not half the length* of the anterior wings, dark fuscous. Anterior wings pale golden, with a slight greenish tinge, much reticulated with purple, and with *the veins also purple*, a pale spot *of the ground-colour* appears beyond the middle of the inner margin; cilia grey. Posterior wings grey, slightly purplish towards the apex; cilia grey.

Common in April among birches, preferring calm, sunny afternoons; it is especially abundant at Darenth Wood.

8. **Salopiella**, n. sp. Alis anticis *latiusculis* dilute aurcis, purpureo valde suffluis, *venisque purpureis*, macula dorsali *majore* pone medium dilute aurca; *capillis luteo-cinereis*; antennis *dimidium* alarum *antearum æquantibus*. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head and face *yellowish-grey*. Antennæ dark fuscous, about half the length of the anterior wings. Anterior wings *rather short and broad*, pale golden, much suffused with purple, the veins also purple, beyond

the middle of the inner margin is a *conspicuous rather triangular spot* of the pale ground-colour, *which reaches fully half across the wing*; on the costa, a little beyond it, is a small less distinct pale spot, and there are faint indications of a pale spot on the fold before the middle; cilia purplish-fusca, opposite the pale spot of the inner margin *pale golden*. Posterior wings pale grey, towards the apex purplish, with paler cilia.

Taken freely, along with the preceding, by Mr. Salt, near Shrewsbury, in April, 1853, in a wet place among birches.

9. **semipurpurella**, Step. II. iv. 359 (1835); Sta.; Zell.? L. E. v. —*Solierella*, Dup.—*auripulverella*, Evers.?—*amentella*, Zell.? Ent. Ztg. 1850. Alis anticis purpureis, dilute aureo-irroratis, macula transversa pone medium dorsi, dilute aurea; capillis cinereo-fuscis; antennis dimidio alarum anticarum longioribus. Exp. al.  $5\frac{1}{2}$ –6 lin.

Head and face *greyish-fusca*. Antennæ dark fuscous, *more than half* the length of the anterior wings. Anterior wings purple, irrorated with pale golden, and with a large pale golden spot beyond the middle of the inner margin, reaching half across the wing; cilia grey. Posterior wings grey, with a slight purplish tinge towards the apex; cilia grey, paler towards the anal angle.

Common among birches in April. (In Continental specimens of *M. amentella* I have before me, the anterior wings appear shorter and more rounded than in *M. semipurpurella*.)

10. **unimaculella**, Zett. I. L. 1008 (1840); Sta.—*purpurella*, var. *b.* Zell.—*unipunctella*, Dup.? Alis anticis dilute aureis, purpureo valde suffusis, macula transversa *tenui*, pone medium dorsi, *plicam transeunte*, luteo-alba; capillis saturate fuscis; antennis dimidium alarum anticarum æquantibus. Exp. al. 5 lin.

Head and face *dark fuscous*, mixed with grey. Antennæ dark fuscous, about half the length of the anterior wings. Anterior wings pale golden-green, almost entirely suffused with purple, leaving however a conspicuous *yellowish-white spot* beyond the middle of the inner margin; *this spot is rather narrow, slightly curved outwardly, and reaching about half across the wing*; cilia grey. Posterior wings pale grey, with a purplish tinge towards the apex; cilia greyish.

Occurs among birches in April. Not uncommon at West Wickham Wood; but does not seem to occur at Darenth Wood, where *M. purpurella* is so plentiful.

11. **Sparmannella**, Bosc. Lin. Trans. i. 197. pl. 17. f. 6, 7 (1791); Fab.; Dup.; Zell.; Sta.—*auropurpurella*, Haw.; Step. Alis anticis *latusculis* aureis, *pulcherrime* purpureo-reticulatis, macula aurea dorsi pone medium; capillis cinereis. Exp. al.  $4\frac{1}{2}$  lin.

Head and face *greyish*, slightly mixed with dark fuscous. Antennæ dark fuscous, not half as long as the anterior wings. Anterior wings golden, *delicately reticulated with purple*, with a spot on the inner margin beyond the middle, of unreticulated ground-colour; cilia alter-

nately yellowish-grey and fuscous. Posterior wings pale greyish-purple; cilia pale yellowish.

Less common than the allied species; occurs among birches in April and May.

12. **subpurpurella**, Haw. L. B. 571 (1829); Step.; Sta.; Zell.—*Donzelella*, Dup.?—var.? *fastuosella*, Zell.; Sta. Alis anticis dilute viridi-aureis, macula obsoleta dilutiora pone medium dorsi, squamis sparsis disci purpureis; capillis cinereis. Exp. al. 6 lin.

Head and face pale greyish-fuscous. Antennæ fuscous, more than half the length of the anterior wings. Anterior wings pale golden-green, with a faint appearance of a paler spot on the inner margin beyond the middle, and between this and the apex of the wing, is a still more indistinct pale spot; on the disc are a few isolated purple scales (in some specimens these are much more numerous, these then become *M. fastuosella*); cilia greyish-fuscous. Posterior wings pale grey, with the apex purplish; cilia greyish.

Common among oaks in May. I have taken many of the variety *fastuosella*, on a paling under oaks, near Beckenham.

## Genus XII. NEMOPHORA.

NEMOPHORA, Hüb. V. 417 (1816); Dup. Cat.; Zell. L. E. v. *Nematopogon*, Zell. Isis, 1839. *Alucila* p., Fab. *Capillaria* p., Haw. *Adela* p., Treit.; Curt.; Step.; Dup. L. F. xi.; Zett.

Caput superne hirsutum, capillis in fronte decumbentibus. Ocelli nulli. *Antennæ longissimæ*, articulo basali incrassato. Palpi maxillares 5-articulati, plicati. Palpi labiales breves, cylindrici, pilosi. Haustellum mediocres. Alæ anteriores elongato-ovatæ; vena subcostalis ramos tres in costam emittit, quorum tertius furcatus est. Posteriores ovatæ, basim versus piloso-squamatæ, ciliis medioeribus.

Head above hairy; hairs in front decumbent. Ocelli none. *Antennæ very long*, more than twice the length of the anterior wings; the basal joint thickened. Maxillary palpi five-jointed, folded. Labial palpi short, cylindrical, hairy. Tongue of moderate length. Anterior wings elongate-ovate. Posterior wings ovate, towards the base with elongate hair-like scales, with moderate cilia. (*N. pilella* has all the scales of the posterior wings of the elongate hair-like form, and *N. Carteri* has none of this form, and is further singular in the shape of the posterior wings, the apical vein of which is furcate.) The subcostal vein of the anterior wings emits three branches towards the costa, of which the third is furcate.

These insects frequent hedges and woods; they fly in the dusk of evening, but are readily started from their retreats during the

day. The larvæ of none of them are yet known. The British species are all very similar, with pale ochreous-grey anterior wings.

1. **Swammerdammella**, Lin. S. N. (10) 540. 284 (1758); Fab.; W. V.; Hüb.; Schr.; Treit.; Step.; Dup.; Zell.; Sta.—*Swammerdami*, Haw. Alis anticis unicoloribus sericeis, dilute ochreis, *obsoletissime* obscuriore-reticulatis, ciliis dilute ochreis, externe fuscis; alis posticis dilute griseis, *ciliis dilute ochreis*. Exp. al. 10 lin.

Head dark ochreous. Face and palpi pale greyish-ochreous. Antennæ whitish-ochreous. Anterior wings unicolorous, shining, pale ochreous, with very obsolete darker reticulations; cilia pale ochreous, the tips somewhat fuscous. Posterior wings pale grey, with *pale ochreous cilia*.

Common in woods, from the end of May to the middle of June.

2. **Schwarziella**, Zell. Isis, 1839. p. 185; Sta.; H.-S.—var. *sericinella*, Sta. (non Zell.)—*Robertella*, Lin.?—*Panzeri*, Haw.?—*pilea*, Haw.?—*Panzerella*, Step.?; Dup.? Alis anticis *elongatis* sericeis dilute ochreis, obsolete obscuriore-reticulatis, ciliis dilute ochreis; alis posticis dilutis griseis, *ciliis dilute griseis*. Exp. al. 8 lin.

Head dark ochreous. Face and palpi pale ochreous-grey. Antennæ whitish. Anterior wings *rather elongate*, with the apex somewhat pointed, shining, pale ochreous, obscurely reticulated with darker, and a faint fuscous spot at the termination of the discoidal cell; cilia pale ochreous. Posterior wings pale grey, *with pale grey cilia*, towards the anal angle rather inclining to ochreous.

Commoner than the preceding; frequent in hedges in May and June.

3. **Carteri**, n. sp. Alis anticis *elongatis* sericeis ochreis, postice vix obscuriore-reticulatis, ciliis dilute ochreis, externe fuscis; alis posticis *apice acuto*, *saturate griseis*, ciliis interne griseis, externe dilute ochreis. Exp. al. 9 lin.

Head dark ochreous. Face and palpi whitish. Antennæ white. Anterior wings rather long, with the apex somewhat pointed, shining ochreous, posteriorly with hardly perceptible darker articulations; cilia pale ochreous, the tips somewhat fuscous. Posterior wings *with the apex rather pointed*, *dark grey*; cilia at first grey, then pale ochreous.

A single specimen, in the collection of Mr. Carter, of Manchester.

4. **pilella**, W. V. 142. 6 (1776); Fab.; Hüb.; Treit.; Zell.; H.-S.; Sta.; Dup.?; Zett.? Alis anticis *breviusculis* sericeis *dilute fuscis*, obscuriore-reticulatis, ciliis griseo-fuscis; alis posticis griseo-fuscis, *ciliis saturate griseis*. Exp. al. 8 lin.

Head dark ochreous. Face and palpi whitish. Antennæ whitish.

Anterior wings *rather short*, with the apex slightly rounded, shining, *pale fuscous*, with darker reticulations; cilia greyish-fuscous. Posterior wings greyish-fuscous, with a slight violet gloss, *with dark grey cilia*.

Not common; appears in June. Mr. Weaver has met with it in Scotland.

5. **Metaxella**, Hüb. Tin. 413 (1816); Treit.; Dup.; Zell.; Sta.—*Robertella*, Step.? Alis anticis *brevisculis*, *apice rotundato*, scricis dilute ochreis obsolete fuscescence-reticulatis, ciliis dilute ochreis, externe fuscis; alis posticis griseis, *ciliis ochreis*. Exp. al.  $7-7\frac{1}{2}$  lin.

Head dark ochreous. Face and palpi whitish. Antennæ white. Anterior wings *rather short*, *with the apex rounded*, shining, pale ochreous, obscurely reticulated with pale fuscous, and a faint fuscous spot at the termination of the discoidal cell; cilia pale ochreous, with the tips somewhat fuscous. Posterior wings grey, *with ochreous cilia*.

Not uncommon in chalky places, in May and June.

### Genus XIII. **ADELA.**

ADELA, Lat. II. N. xiv. 253 (1805); Zell.—*Alucita*, Lat. R. A.—*Alucita* p., Fab.—*Capillaria* p., Haw.—*Adela* p., Treit.; Curt.; Step.; Dup.; Zett.

Caput superne hirsutum, *epistomio* plerumque *lævigato*. Ocelli nulli. Palpi maxillares nulli. Palpi labiales cylindrici, infra hirsuti. Haustellum mediocre. Oculi in *utroque sexu valde distantes*. Antennæ corpore *multo longiores*, basin versus incrassatæ, ♀ breviores basi villosa. Alæ anteriores oblongæ, venis quinque in marginem posticum excurrentibus; alæ posteriores oblongo-ovatæ, mediocriter ciliatæ.

Head above hairy; *the face mostly smooth*. Ocelli none. Maxillary palpi none. Labial palpi cylindric, beneath hairy. Tongue of moderate length. Eyes *remote in both sexes*. Antennæ much longer than the body, slightly thickened towards the base; in the ♀ shorter and at the base downy. Anterior wings oblong. Posterior wings oblong-ovate, with moderate cilia. From the discoidal cell of the anterior wings, five veins run into the hinder margin.

The perfect insects of this genus frequent flowers and trees, and delight to fly in the sunshine. *A. viridella* flies in swarms like gnats round the twigs of oaks. *A. fibulella* often abounds on the flowers of *Veronica Chamædrys* in the middle of the day, but conceals itself securely before evening. None of the larvæ have yet been detected, excepting that of *A. Degeerella* (figured by Fischer von Röslerstamm), which lives in a flat case, under fallen leaves in the winter, and feeds in the early spring on *Anemone nemorosa*, *Rumex*, and *Alsine media*.



This genus certainly requires subdivision, hardly two species showing an entire accordance; the British species may be arranged in the following table:—

- a.* Antennæ not much longer than the body, in both sexes nearly of equal length. Face roughly haired nearly to the mouth. Species 1.
- a a.* Antennæ considerably longer than the body, in the ♀ generally shorter than the ♂. Face, at least beneath, clothed with smooth scales.
- b.* Head densely haired. Antennæ of the ♀ nearly as long as in the ♂; only the lower part of the face smooth. Species 2.
- b b.* Head thinly haired. Antennæ of the ♂ *very long*, of the ♀ much shorter. Face quite smooth. Species 3, 4.
- a a a.* Antennæ long, in the ♀ shorter. Face and legs of the ♂ very hairy.
- c.* Tongue and basal joint of the antennæ of the ♂ very hairy. The basal half of the antennæ of the ♀ much thickened; face of the ♀ smooth. Species 5.
- c c.* Tongue and basal joint of the antennæ in the ♂ not hairy. The basal half of the antennæ of the ♀ not thickened; face of the ♀ hairy. Species 6.

Several other species are known on the continent.

1. **Fibulella**, W. V. 143. 33 (1776); Dup.; II.-S.; Zell.; Fab.? —*Frischii*, Haw.—*Latreillella*, Step.? Alis anticis cupreo-fuscis, macula dorsi pone medium transversa dilute lutea. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi black. Antennæ black, the last fourth white. Anterior wings coppery-fuscous, with a pale yellowish spot near the base, not touching either margin (sometimes wanting), and on the inner margin beyond the middle a transverse pale yellowish spot, frequently reaching more than half across the wing; cilia coppery-fuscous. Posterior wings dark violet-fuscous, with paler cilia.

Abundant in May and June on the flowers of *Veronica Chamædrys*.

2. **rufimitrella**, Scop. F. C. 251. 649 (1763); Zell. L. E. viii. —*Frischella*, Hüb.; Treit.; Dup.; Zell. Isis, 1839.—*Reaumurella*, Step.? Alis anticis saturate viridi-teneis, costam versus paullulum cupreo-tinctis. Exp. al.  $4\frac{1}{2}$  lin.

Head behind greyish-ochreous; in front and the face dark fuscous, inclining to black. Antennæ purplish-black. Anterior wings dark bronzy-green, towards the costa rather coppery; cilia bronzy-grey. Posterior wings dark violet-fuscous, with dark grey cilia.

Common in May, in meadows, on the flowers of *Cardamine pratensis*.

3. **Sulzella**, W. V. 143. 24 (1776); Hüb.; Treit.; Step.; Dup. —*Saltzii*, Haw.—*Sulzeriella*, H.-S.; Zell.—*Podacella*, Don.; Linn.? Alis anticis luteis, saturate violaceo-fusco stratis, fascia paullulum pone

medium lutea (ad dorsum latiore) saturate violacco marginata. Exp. al. (sex) 6 lin.

Head dark greyish-ochreous. Face silvery-grey. Antennæ towards the base black, then white (in the ♀ the basal half is much thickened with violet-fusca scales). Anterior wings yellow, with the base and numerous longitudinal streaks to the middle dark violet-fusca; *a little* beyond the middle is a slightly curved yellow fascia, broadest on the inner margin, bordered on each side by dark violet fascia; the apical portion of the wing is yellow, with the veins and all the margins dark violet-fusca; cilia dark violet-fusca. Posterior wings dark purplish-fusca, with paler cilia.

On chalky soils in the south of England; not uncommon in June.

4. **Degeerella**, Linn. F. S. 1393 (1761); Fab.; Lat.; Treit.; Step.; F. v. R. pl. 66; Dup.; Zell.; Zett.—*Geerella*, Hüb.—*Degeerii*, Haw.—*Croesella*, Scop.—*striatella*, Fab.—♀ *Sultzella*, Linn.? Alis anticis ochreo-fuscis, obscure luteo-striatis, fascia postica lutea saturate violacco-fusco marginata. Exp. al. (novem) 9 lin.

Head dark yellow. Face silvery-violet. Antennæ towards the base violet-fusca, then white (in the ♀ the basal half is much thickened and violet-black). Anterior wings violet-fusca, streaked with dingy-yellow, with a nearly straight bright yellow fascia, *decidedly beyond* the middle, slightly expanded on the inner margin, and bordered on each side with dark violet-fusca; the apical portion of the wing is entirely violet-fusca, except the space between the veins, which is frequently dark yellow; cilia dark violet-fusca. Posterior wings dark violet-fusca, with dark grey cilia.

A common species in June in woods in the south of England; also at Keswick; generally flies in small companies of half-a-dozen (male) individuals. The larva feeds in flat cases under fallen leaves on the wood anemone, and other low-growing plants, in the spring.

5. **viridella**, Scop. F. C. 250. 645 (1763); W. V.; Treit.; Step.; Zell.; H.-S.—*viridis*, Haw.—*vindella*, Fab.—*Sphingiella*, Hüb.—*Reaumurella*, Dup.; Clerck? Alis anticis nitidis viridi-æneis, costa pone medium cupreo-lincta. Exp. al. 7½ lin.

Head, face, and palpi black. Antennæ white, towards the base spotted with black (in the ♀ the head is dark grey, and the slightly thickened antennæ violet-black at the base). Anterior wings *bright bronzy-green*, with a slight coppery tinge along the costa beyond the middle; cilia bronzy-fusca. Posterior wings dark violet-fusca, with dark grey cilia.

Abundant in most oak-woods; the males flying in little swarms of about twenty individuals round the ends of the oak-boughs; at the end of May and beginning of June.

6. **cuprella**, Fab.; Treit.; Dup.; Zell.; Sta.; H.-S.; W. V.? Hüb.? Step.?—♂ *æneella*, Zett.—♀ *crinitella*, Zett.—*Reaumurella*, Linn.? Alis anticis viridi-æneis, *cupreo-violaceo-tinctis*, præcipue costam et marginem posticum versus. Exp. al.  $7\frac{1}{2}$  lin.

Head, face, and palpi black (in the ♀ ferruginous). Antennæ white, towards the base spotted with black. Anterior wings bronzy-green, *with a coppery-violet tint*, especially towards the costa and hinder margin; cilia bronzy-fuscons. Posterior wings dark purplish-fuscons, with slightly paler cilia.

Appears at the end of April, frequenting the salallows while in bloom; occurs on Wimbledon Common.

#### Genus XIV. **NEMOTOIS.**

NEMOTOIS, Zell.; Dup. Cat. *Alucita* p., Fab. *Capillaria* p., Haw. *Adela* p., Treit.; Curt.; Step.; Dup. L. F.; Zett. *Epilyphia* et *Nemotois* p., Hüb.

Caput superne hirsutum, *epistomio lævigato*. Ocelli nulli. Palpi maxillares nulli. Palpi labiales cylindrici, infra hirsuti, ♀ breviores. Haustellum mediocre. Oculi ♂ *magni, approximati*; ♀ minores, valde distantes. Antennæ corpore *multo longiores*, basin versus incrassatæ, ac plerumque barbatae; ♀ breviores. Alæ anteriores oblongæ; venis quinque in marginem posticum excutibus. Alæ posteriores oblongo-ovatae mediocriter ciliatæ.

Head above hairy; *the face smooth*. Ocelli none. Maxillary palpi none. Labial palpi cylindric, beneath hairy (in some species extremely so), in the ♀ shorter. Tongue of moderate length. Eyes of the ♂ *large and approximating*, of the ♀ smaller and remote. Antennæ *very considerably longer* than the body, thickened towards the base, and not unfrequently with projecting scales; in the ♀ shorter. Anterior wings oblong. Posterior wings oblong-ovate, with moderate cilia. From the discoidal cell of the anterior wings, five veins run into the hinder margin.

The perfect insects of this genus are mostly splendid beyond description; they frequent flowers in the sunshine. Of the habits and food of the larva nothing is known; the acuminate, elongate abdomen of the ♀ of *N. Scabiosellus* would imply that the eggs were deposited *in* some substance, and Zeller has observed them boring into the flowers of *Scabiosa arvensis* (as though with a view of depositing their eggs there).

The genus is susceptible of subdivision, from the structure of the abdomen of the ♀. The British species may be easily distinguished as follows:—

- a. Abdomen of the ♀ very narrow; the terminal half nearly bare. Anterior wings with no dark fascia; yellowish-bronze. Species 1.

*a a.* Abdomen of the ♀ rather narrow, with the ovipositor bare. Anterior wings with a shadowy dark fascia.

*b.* Antennæ of the ♀, towards the base, thickened. Species 2.

*b b.* Antennæ of the ♀, towards the base, not thickened. Sp. 3, 4.

1. **Scabiosellus**, Scop. F. C. 250. 644 (1763); Treit.; Dup.; Zett.; H.-S.; Zell.—*cuprea*, Haw.—*Frischella*, Curt. B. E. fo. 463; Step. Alis anticis *flavido-aeneis*, costam versus saturatoribus, apicem versus flavido-suffusis. Exp. al. 9 lin.

Head ferruginous. Face silvery-grey. Palpi ochreous-fuscous. Antennæ at the base violet-black and rather thickened; the last two-thirds white. Anterior wings *yellowish-bronze*, along the costa rather darker, towards the apex more yellowish; cilia bronzy-fuscous. Posterior wings dark purplish-fuscous, with cilia of the same colour.

Not uncommon (but rather local) in June, frequenting the flowers of *Scabiosa arvensis* and *Columbaria*.

2. **cupriacellus**, Hüb. Tin. 445 (1822); Zell.—*cypricella*, Dup.; H.-S.; Treit.? ♀ Alis anticis antice viridi-aureis, postice nitide cupreis, fascia media saturatiore obsoleta; antennis dimidio basali *incrassatis*. Exp. al. 7 lin.

*Female.* Head ferruginous. Face brilliant metallic. Palpi pale ferruginous, mixed with fuscous. Antennæ towards the base rather *thickened*, bluish-black, with the last third white. Anterior wings golden-green nearly to the middle, there brilliant coppery, with only a faint indication of a darker fascia; cilia coppery-fuscous. Posterior wings purplish-fuscous; cilia the same colour.

I am unacquainted with the male of this species. Mr. Douglas took several fine specimens (all females) at Sanderstead in June.

3. **fasciellus**, Fab. S. E. 670. 18 (1775); Step.—*fascia*, Haw.—*Schiffermüllerella*, W. V.; Hüb.; Treit.; Dup.; H.-S.—*Schiffermüllerus*, Zell. L. E. viii. Alis anticis nitide cupreis ipsa basi viridi-aurea, linea *brevissima* basali costam versus nigra, *fascia saturate violacea* paullulum pone medium; alis posticis griseo-fuscis; ♀ alis posticis saturate violacco-fuscis, antennis *non incrassatis*. Exp. al. 7 lin.

*Male.* Head, face and palpi black. Antennæ white; the basal and several of the succeeding joints black. Anterior wings brilliant coppery, at the extreme base greenish-golden, with a *very short* black streak at the base near the costa; a little beyond the middle is a *well-defined*, *dark violet fascia*, rather expanded towards the costa; cilia coppery. Posterior wings greyish-fuscous, with paler cilia. *Female.* Head ferruginous. Face brilliant metallic. Palpi greyish-ochreous. Antennæ *not thickened*, black, with the last third white. Posterior wings dark violet-fuscous, with similarly coloured cilia.

Apparently scarcer than formerly; I know of no recent specimens. Frequents flowers in June and July.

4. **minimellus** (Mann), Sta. Cat. p. 10 (1849); Zell. L. E. viii. 76; H.-S. ?—var. ♂? *Dumerilella*, Sta. ♂ Alis anticis viridi-aureis postice cupreis, *linea basali* costam versus nigra, fascia *nebulosa* saturate violacea pone medium; alis posticis violacco-griseis (interdum albidogriseis, apice violacco-griseo); ♀ alis anticis saturatoribus; alis posticis saturate violacco-griseis; antennis *non incrassatis*. Exp. al.  $5\frac{1}{2}$  lin.

*Male*. Head, face, and palpi black. Antennæ white; the basal joint and several of the succeeding joints black. Anterior wings greenish-golden, towards the apex coppery, with a *black streak* at the base near the costa, and beyond the middle an *obscure* deep violet fascia, outwardly concave and rather expanded on the costa; cilia coppery-golden. Posterior wings greyish-violet; cilia pale grey. (In some specimens the posterior wings are whitish, with only the apex violet-grey). *Female*. Head ferruginous. Antennæ *not thickened*. Anterior wings darker than in the males. Posterior wings dark violet-grey, with the cilia a little paler.

Occurs in moist places in July, among *Scabiosa succisa*, in Scotland; also in the hilly field, near Mickleham. (The specimens with dark underwings agree precisely with the continental species; and those with light underwings I am quite unable to distinguish specifically; all have the characteristic black streak at the base well-defined. The discovery of the larvæ will throw light on this, at present, "*rexata quæstio*.")

### FAMILY III. HYPONOMEUTIDÆ, Sta.

Palpi labiales mediocres. Palpi maxillares desunt. Caput lanatum vel levigatum. Ocelli nulli. Haustellum mediocre, rarius squamatum. Alæ anteriores elongatæ, ciliis mediocribus. Larva sæpe gregaria.

Labial palpi of moderate length. Maxillary palpi wanting. Head rough or smooth. Ocelli none. Tongue of moderate length, mostly naked. Anterior wings elongate, with moderate or rather short cilia. Larva frequently gregarious, living in a common tent.

Although the species composing this family appear to have considerable affinities with each other, it seems impossible to bring them under any general definition.

The two first genera have been placed with *Tinea*, but are in many respects very discordant there; moreover a connecting link between *Seythropia* and *Hyponomeuta* is furnished by the continental species *Hyponomeuta rufimitrellus*, Zell., which, though in other respects a true *Hyponomeuta*, has a *rough head*; the larvæ

of *Scythropia* being gregarious, furnishes another point of resemblance with *Hyponomeuta*.

The six genera of this family may be easily distinguished, as follows:—

- a.* Head rough.
  - b.* Palpi porrected. 1. SWAMMERDAMIA.
  - b b.* Palpi drooping. 2. SCYTHROPIA.
- a a.* Head smooth.
  - c.* Palpi reflexed.
    - d.* Terminal joint blunt.
      - e.* Posterior wings with a hyaline patch at the base. 3. HYPONOMEUTA.
      - e e.* Posterior wings with no hyaline patch at the base. 6. PRAYS.
    - d d.* Terminal joint pointed. 4. ANESYCHIA.
  - c c.* Palpi porrected, short. 5. CHALYBE.

### Genus I. **SWAMMERDAMIA.**

*Erminea* p., Haw. *Lita* p., Treit. *Telea* p., Step. *Tinea* p., Dup.; Zell. *Mompha* p., *Tebenna* p., et *Swammerdamia* p., Hüb.

Capilli hirsuti. Ocelli nulli. Palpi labiales *porrecti*, breves, filiformes, subattenuati. Haustellum breve, nudum. Alæ anteriores elongatæ, medioeriter ciliatæ. Alæ posteriores elongato-ovatæ, *foveola hyalina basali*. Alæ anteriores: vena apicalis simplex ante apicem exit, infra eam tantum rami *quinque*; stigma distinctum; vena subdorsalis simplex; submediana a mediana distat, in fine incrassata; posteriores: cellula costalis subito coarctata, *ante medium desinente*; vena mediana *bifida*; cellula discoidalis obtusa.

Head rough. Ocelli none. Labial palpi *porrected*, short, filiform, rather attenuated. Tongue short, naked. Anterior wings elongate, with moderate cilia. Posterior wings elongate-oval, *with a hyaline patch at the base*. In the anterior wings a simple apical vein runs into the costa before the apex, below it are only *five* veins to the hinder margin; the stigma is distinct; the subdorsal vein simple; the submedian vein remote from the median vein is posteriorly thickened. In the posterior wings the costal cell is suddenly narrowed, and *terminates before the middle of the wing*; the median vein is *bifid*, and the discoidal cell obtuse.

The perfect insects of this genus have a pleasant wavy zigzag flight, and frequently disport themselves during the hot sunshine. When they repose, it is with the abdomen considerably elevated, so that they appear to stand somewhat on their heads; this position, their greyish-white colour, and their cylindric form when the wings are closed, cause them to be easily mistaken for the fæces

of small birds. *S. apicella* and *S. Pyrella* appear in the first burst of spring, and are indelibly associated in the mind of the collectors with those few warm days at the end of April, "too bright to last." The other species do not appear till considerably later; probably all, with the exception of *S. apicella*, are double-brooded. The larvæ of this genus are long and slender (especially anteriorly), with sixteen feet, and reside singly in webs on the upper surface of the leaves of hawthorn, apple, pear, birch, etc. They are easily frightened from their place of abode, and readily descend to the ground by their silken threads; when full-fed they spin rather dense cocoons of very fine white silk. The five British species are all rather closely allied.

1. **apicella**, Don. B. I. ii. pl. 57 (1792).—*comptella*, Hüb.; Step.; Zell.; H.-S.—*compta*, Haw.—*aurofinitella*, Dup. Alis anticis albidis grisco-ochreisque, squamis fuscis in scriebus longitudinalibus dispositis, macula costæ ante apicem albida, apice ochreo interne fusco-marginato. Exp. al. 8 lin.

Head and face white, with a few grey hairs. Palpi dark grey; terminal joint white. Antennæ dark grey. Anterior wings white or greyish-ochreous, with the extreme base dark ochreous; along the disc are several longitudinal rows of dark fuscous scales; a spot on the costa before the apex is whitish; *the entire apex of the wing is bright ochreous, margined internally by some dark fuscous scales*; cilia dark coppery-grey, at the anal angle pale grey. Posterior wings pale grey, with paler cilia.

This insect appears at the end of April and beginning of May; not uncommon in mixed hedges in the south of England.

2. **Cæsiella**, Hüb. 172 et 360 (1801 et 1816); Lienig; H.-S.—*Heroldella*, Treit.; F. v. R. pl. 13; Dup.—*lutarea* var.  $\gamma$ , Haw.—*lutarella*, Step.? Alis anticis griseis, atomis fuscis in scriebus longitudinalibus dispositis, dorso albido, macula dorsali saturate fusca ante medium, *plicam non transeunte*, nebula saturate fusca paullulum posteriore, macula parva costæ saturate fusca apicem versus, inter squamas albas posita; alis posticis *dilute griseis*; capillis albi salbidisque. Exp. al. 6 lin.

Head and face *white* or whitish. Palpi dark grey, tip of the terminal joint white. Antennæ with the basal joint white, remainder grey. Anterior wings grey, with a slight violet tint, with several longitudinal rows of fuscous atoms; the inner margin is whitish, interrupted before the middle by a dark fuscous spot, *which does not cross the fold*; rather beyond this, towards the costa, is an obscure dark spot; a small dark fuscous spot lies on the costa before the apex, and is preceded and followed by some whitish scales; below the latter are some black scales, forming a short streak, and at the extremity of the fold are a few dark

fuscous scales; cilia coppery-grey. Posterior wings *pale grey*, with pale greyish-fuscous cilia.

Common among mixed hedges in June (and I think again in August); the larva in September is not uncommon, and appears polyphagous, unless we have several closely allied, yet-to-be-distinguished species; I have found it on birch.

3. **griseocapitella**, Sta. Sup. Cat. p. 2 (1851).—*oxyacanthella*, H.-S.? Alis anticis *saturate* griseis, atomis *saturate* fuscis in seriebus obsoletis longitudinalibus dispositis, dorso *anguste* albido, *nebula transversa dorsi* ante medium, macula parva albida costæ ante apicem; alis posticis *griseo-fuscis*; capillis *saturate* *griseo-fuscis*. Exp. al.  $5\frac{1}{2}$ –6 lin.

Head *dark-greyish fuscous*. Face whitish. Palpi dark grey, tip of the terminal joint white. Antennæ whitish, annulated with fuscous. Anterior wings rather *dark grey*, with a slight violet gloss, with several rather indistinct longitudinal rows of dark fuscous atoms; the inner margin is *narrowly* whitish, interrupted before the middle by a dark fuscous *fasciaform blotch*; on the costa before the apex is a small whitish spot; cilia dark coppery-grey. Posterior wings *greyish-fuscous*, with paler cilia.

Abundant in June among birches, in Torwood, Stirlingshire; the larva (almost gregarious) on the birches in September.

4. **lutarea**, Haw. L. B. 515 (1829).—*oxyacanthella*, Sta.—*compunctella*, H.-S. Alis anticis griseis, atomis *saturate* fuscis in seriebus obsoletis longitudinalibus dispositis, nebula basali, altera *transversa* ante medium, tertia ad apicem *saturate* fuscis, macula *obsoleta* albida costæ ante apicem; alis posticis *griseis*; capillis *albidis*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face *yellowish-white*. Palpi dark grey; tip of the terminal joint white. Antennæ dark fuscous. Anterior wings grey, with a slight violet tint, with dark fuscous atoms arranged rather indistinctly in rows longitudinally, and with some dark fuscous clouds, one at the base, one arising on the inner margin before the middle and *fasciaform*, and another at the apex; on the costa before the apex is a *faint* white blotch, immediately below which are a few black scales; cilia coppery-grey, at the anal angle grey. Posterior wings *grey*, with paler cilia.

Not commonly met with, probably often confounded with *S. Cesiella*; appears in July and August.

5. **Pyrella**, Vill. E. L. ii. 515. 1020 (1789).—*Cerasiella*, Hüb.; Treit.; F. v. R. pl. 14; Dup.; H.-S.—*Cesia*, Haw.—*Cesiella*, Step.? Alis anticis *saturate* griseis, atomis fuscis obsoletissime in seriebus dispositis, macula transversa obliqua ante medium dorsi *saturate* fusca, macula parva costæ ante apicem albida, *apice cupreo-griseo*; alis posticis dilute griseis, *basim versus* *albidis*; capillis *albidis*. Exp. al.  $5\frac{1}{2}$  lin.

Head and face whitish. Palpi dark grey; tip of the terminal joint



whitish. Antennæ dark fuscous. Anterior wings rather *dark grey*, with a slight violet tint, with very faint indications of longitudinal rows of fuscous atoms; before the middle of the whitish inner margin is a dark fuscous spot, which appears to be continued obliquely, nearly across the wing; a small whitish spot lies on the costa before the apex; *apex of the wing* and cilia *coppery-grey*. Posterior wings rather pale grey, *towards the base whitish*, with pale greyish-fuscous cilia.

An abundant species in hedges and gardens, appearing in April and May, and again in August. The larva feeds on hawthorn, apple, pear, etc., in July and September.

## Genus II. SCYTHIROPIDÆ.

*Scythropia* p., Hüb. *Iponomeuta* p., Treit. *Telea* p., Step. *Tinea* p., Dup.; Zell.

Capilli hirsuti. Ocelli nulli. Haustellum brevissimum, nudum. Palpi labiales breves, filiformes, *penduli*. Alæ anteriores elongatæ, medio-criter ciliatæ. Alæ posteriores oblongo-ovatæ, *foveola hyalina nulla*. Alæ anteriores: vena apicalis simplex ante apicem exit, infra eam rami *sex*; vena subdorsalis furcata, sed furcæ ramus superior debilis; posteriores: cellula costalis *elongata*, coarctata; vena mediana *trifida*.

Head rough. Ocelli none. Tongue very short, naked. Labial palpi short, filiform, *drooping*. Anterior wings elongate, with moderate cilia. Posterior wings oblong-ovate, *not* with a hyaline patch at the base. In the anterior wings the simplex apical vein runs into the costa before the apex; below it *six* veins run to the hinder margin; the subdorsal vein is furcate, but the upper branch of the fork is rather obsolete. In the posterior wings the costal cell is narrow and *elongate*; the median vein is *trifid*.

This genus only contains one species, of which the larva is gregarious, thus approaching in habit towards the following genus.

1. **Cratægella**, Linn. S. N. (12) 885. 353 (1767); W. V.; Fab.; Hüb.; Godart; Treit.; Step.; Frey.; Dup.; Zell. Alis anticis albis, fuscescente-irroratis, fasciis duabus obliquis ochreo-fuscis, margine postico apiceque costæ fusco-punctatis. Exp. al. 7 lin.

Head and face white, mixed with pale fuscous. Palpi pale fuscous; the terminal joint with a ring near the base, and the apex white. Antennæ greyish-fuscous. Anterior wings white, irrorated with pale fuscous, with an ochreous-fuscous fascia placed rather obliquely in the middle, and sometimes not reaching to the costa; beyond the middle is another oblique fuscous fascia beginning on the costa beyond the middle, and terminating at the anal angle; the hinder margin and apex of the costa are spotted with fuscous; cilia whitish, with a pale fuscous line. Posterior wings pale grey, with pale greyish-fuscous cilia.

Not uncommon in July; the gregarious larva feeds on hawthorn in June.

### Genus III. **HYPONOMEUTA.**

**HYPONOMEUTA**, Zell. Isis, 1844. p. 199. *Xponomeuta*, Step.; Dup. *Nygma*, Hüb. *Xponomeuta* p., Lat.; Treit. *Erminea* p., Haw.

Capilli depressi. Ocelli nulli. Palpi labiales breviusculi, reflexi, *filiformes, subacuti*. Haustellum mediocre, *nudum*. Alæ elongatæ, breviter ciliatæ; posteriores *foreola hyalina basali*. Alæ anteriores: vena apicalis simplex; cellula secundaria *perfecta*; vena subdorsalis furcata; posteriores: cellula costalis in medio contracta; vena mediana *bifida*.

Head smooth (in a single continental species, *H. rufimitrellus*, Zell., rough). Ocelli none. Labial palpi rather short, reflexed, *filiform, hardly pointed*. Tongue of moderate length, *naked*. Wings elongate, with short cilia; the posterior *with a hyaline patch at the base*. In the anterior wings, the apical vein is simple; the secondary cell is *complete*; the subdorsal vein furcate. In the posterior wings, the costal cell is contracted in the middle; the median vein is *bifid*.

The perfect insects of this genus are readily known by the numerous small black spots on the white or grey anterior wings; their flight is sluggish. Only one species, *H. vigintipunctatus*, is double-brooded; of all the others there is only one brood each year. This is fortunate; for the gregarious habits of the larvæ, and their numbers, render them extremely destructive to our fruit-trees and hedges. A spindle-tree or an apple-tree, stripped of its leaves in the middle of summer, and covered with white webs formed by these larvæ, is no uncommon sight. The larvæ of most of the species are hatched in the autumn, but remain under a glutinous covering during the winter, and do not commence their depredations till the appearance of the young leaves in spring, when a sudden *blight* changes the face of vegetation, or in other words these larvæ quit their winter-quarters, having been fixed throughout the winter on the very same twigs where their ravages now become so conspicuous. The larvæ remain in company during the whole period of their existence, and spin their cocoons in close proximity with each other.

Much confusion has prevailed with the synonymy of two of the species of this genus, Linnæus having described the larva of one species, naming the insect from its habits, whereas the perfect insect he describes is a distinct species; it therefore becomes an

impossibility now to discover *which species he intended by the name of Evonymella*; and Scopoli having correctly described, under that name, the larva and imago of one species, I have had no hesitation in adopting his name, as the earliest name to which no doubt is attached. Almost every succeeding writer has followed the bad example of Linnæus, without attempting to prove the correctness of his assertions.

Of this genus we have six British species (two others are known on the continent) which may be easily distinguished as follows:—

*a. Anterior wings leaden-grey.*

*b. With a black spot in the cilia of the hinder margin. Species 1.*

*b b. With no black spot in the cilia of the hinder margin. Species 4 (some varieties).*

*a a. Anterior wings white.*

*c. With dark blotches or clouds. Species 2, 3, 4 (some varieties).*

*c c. With no dark blotches or clouds. Species 5, 6.*

1. **vigintipunctatus**, Retz. G. et S. 52. 153 (1783); Zell. Isis, 1844.—*Sedella*, Treit.; Dup.; Step. Zool. 1844. p. 687; Sta. Zool. 1848. p. 2272. *Alis anticis saturate plumbeo-griseis, scriebus tribus longitudinalibus punctorum nigrorum, ciliis dilute griseis, macula infra apicem saturate fusca.* Exp. al. 7 lin.

Head and face dark grey. Palpi pale grey. Antennæ greyish-fuscous. Anterior wings rather *dark leaden-grey*, with three longitudinal rows of black spots; the first near the costa terminating rather beyond the middle, the other two on each side of the fold not reaching to the hinder margin; *cilia* pale grey, *with some dark fuscous scales immediately below the apex.* Posterior wings greyish-fuscous, with paler cilia.

Almost unique in this country; one specimen taken by Mr. Stephens at Norwood. The perfect insect is double-brooded, appearing in April and May, and again in August. The larva appears in June and July, and again in September and October; it feeds on the *Sedum Telephium*.

2. **plumbellus**, W. V. 139. 34 (1776); Fab.; Hüb.; Godart; Treit.; Step.; Dup.; Zell.; Frey. N. B. v. pl. 420.—*plumbea*, Haw. *Alis anticis albis, grisescente-suffusis, apice saturate fusco, scriebus quatuor longitudinalibus punctorum nigrorum, punctulis nigris marginem posticum versus, macula nigra in medio plicæ; ciliis saturate fuscis, angulum analem versus albidis.* Exp. al. 8½–9 lin.

Head, face, and palpi whitish. Antennæ dark fuscous. Anterior wings white, with a slight greyish tint, with four longitudinal rows of black spots, two near the costa and one on each side of the fold; near the hinder margin is a transverse row of small black spots, preceded by a few black spots irregularly placed; *in the middle of the fold is a*

conspicuous black blotch, and the apex of the wing is dark fuscous; cilia dark fuscous, at the anal angle whitish. Posterior wings greyish-fuscous, with paler cilia.

Not uncommon in hedges in the south of England, in July and August. The larva feeds on the spindle (*Euonymus Europæus*) in June.

3. **irrorellus**, Hüb. Tin. 93 (1801); Godart; Treit.; Step.; Dup.; Zell.—*irrorea*, Haw. Alis anticis albidis, seriebus tribus longitudinalibus, serieque curvata marginem posticum versus, punctorum nigrorum, nebula plicæ ante medium, nebulaque majore elongata disci pone medium, fuscis. Exp. al.  $11\frac{1}{2}$  lin.

Head and face white. Palpi beneath dark grey, above white. Antennæ whitish. Anterior wings whitish, with three longitudinal rows of black spots; one near the costa and one on each side of the fold, and a curved row of spots near the hinder margin; on the fold before the middle is a fuscous blotch, and a larger elongated one is on the disc beyond the middle; hinder margin clouded with grey; cilia pale grey. Posterior wings greyish-fuscous, with paler cilia.

A scarce species, appearing in July, among *Euonymus*; the larva, gregarious when young, feeds on that plant in June.

4. **Padellus**, Linn. S. N. (10) 535. 240 (1758); Scop.; Fab.; Hüb.; Step.; Dup.; Guén.—*variabilis*, Zell. Isis, 1844.—var.? *malivorella*, Sta. Cat. Alis anticis albis grisescente-suffusis vel plumbeo-griseis, seriebus tribus longitudinalibus, serieque transversa marginem posticum versus, punctorum nigrorum; ciliis dilute griseis, albisve apicibus dilute griseis. Exp. al. 7–10 lin.

Head, face, and palpi white. Antennæ whitish. Anterior wings white, with a more or less decided greyish tinge, sometimes with a greyish blotch extending from the costa to the fold (frequently the wings are entirely grey), with three rows of black spots, one near the costa, and one on each side of the fold; towards the hinder margin is a row of small black spots, generally preceded by a few irregularly placed; cilia pale grey, or white with the tips pale grey. Posterior wings greyish-fuscous, with paler cilia.

An abundant species, on hawthorn and apple (if indeed the apple species, *malivorella*, be really identical), appearing in July and August. The larvæ appear about the middle of May, and continue their devastations throughout June.

5. **Evonymellus**, Scop. F. C. 246. 631 (1763); Schr.—*Evonymi*, Zell. Isis, 1844.—*cagnagella*, Hüb.—*cognatella*, Step.; Dup.; Freyer; Ratz.; Guénée. Alis anticis albis, seriebus tribus longitudinalibus, serieque transversa marginem posticum versus, punctorum nigrorum; ciliis albis. Exp. al. 11 lin.

Head, face, and palpi white. Antennæ whitish. Anterior wings white, with three longitudinal rows of black spots, one near the costa,

and one on each side of the fold, the lower one consisting of about *five or six* spots; before the hinder margin is a row of smaller black spots, preceded by a few spots irregularly placed; *cilia white*. Posterior wings dark greyish-fuscous, with paler cilia.

Plentiful in the south of England among spindle (*Euonymus Europæus*), in July and August. The larva defoliates the spindle in June; when they have devoured all the leaves, hunger compels them to gnaw the bark of the young stems.

6. **Padi**, Zell. Isis, 1844. p. 225.—*Evonymella*, Hüb.; Freyer; Guénée; Linn. ?; Fab. ?; Haw. ?; Godart ?; Step. ? Dup. ? Alis anticeis *albis*, seriebus *quatuor* longitudinalibus, duabus transversis marginem posticum versus, punctorum nigrorum; ciliis albis. Exp. al.  $11\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ whitish. Anterior wings *white*, with *four* longitudinal rows of black spots, *two* near the costa, and one on each side of the fold, the lower one consisting of from *ten to twelve* spots; towards the hinder margin is a row of small black spots, preceded by a short row nearly parallel to it; cilia white. Posterior wings dark greyish-fuscous, with paler cilia.

Not uncommon where the food of the larva grows; appearing in July and August. The larva feeds on the bird-cherry (*Prunus Padus*), in June.

#### Genus IV. **ANESYCHIA.**

ANESYCHIA, Step. H. iv. 239 (1834). *Iponomeuta* p., Treit.; Curt. *Adia* p., Dup. *Pseudadia* p., Zell.

Capilli depressi. Ocelli nulli. Antennæ ♂ articulis subdentatis, pubescente-ciliatis. Haustellum mediocre, squamatum. Palpi labiales medioeres, *reflexi*, articulo *tertio acuminato*. Alæ oblongæ vel elongatæ, breviter ciliatæ. Alæ anteriores: venæ apicalis *furcatæ* ramus inferior ante vel in apicem exit; cellula secundaria *tantum indicata*; rami infra venam furcatam quinque separati; vena subdorsalis furcata; posteriores: vena mediana *trifida*; cellula costalis elongata, in medio non coarctata.

Head smooth. Ocelli none. Antennæ of the male with the joints rather dentate and pubescent-ciliated. Tongue of moderate length, clothed with scales towards the base. Labial palpi moderately long, *reflexed*, with the third joint pointed. Wings oblong or elongate, with short cilia (the posterior with no hyaline patch towards the base). In the anterior wings the lower branch of the *forked* apical vein runs into the costa before or at the apex; below it are five separate veins from the discoidal cell; the secondary cell is *only indicated*; the subdorsal vein is furcate. In the posterior wings the median vein is *trifid*, and the elongated costal cell is not contracted in the middle.

The species of this genus, many of which are highly beautiful, seem exclusively attached to the *Boraginæ*, on which their larvæ feed. One species, *A. bipunctella*, is known to be double-brooded, but others probably have also two generations in the year.

Of the four British species, two remain at present extremely rare, though by no means scarce on the continent, where a fifth species also occurs.

1. **pusiella**, Roemer, G. I. 22. pl. 23. f. 9 (1789); Panzer; Godart; Curt.; Step.; Dup.—*sequella*, W. V.—*Lithospermella*, Hüb.; Treit.—*scaletta*, Zell.; Scop.? *Alis anticis albis, vitta media irregulari nigra*, quasi maculis tribus utrinque confluentibus, maculis punctisque nigris, abdomine albo. Exp. al.  $13\frac{1}{2}$  lin.

Head and face white. Palpi white; the base of the second and terminal joints black. Antennæ dark fuscous. Anterior wings white, with an irregular black streak running along the middle of the wing, from the base of the costa to near the hinder margin; its irregular form appears to arise from three pair of spots being attached to it, of which those towards the costa are placed posteriorly to the others; near the costa towards the base is an oblong black spot, and a small round black spot lies beyond and below it; in the middle of the costa is a black blotch, and beyond the middle are two small black spots obliquely placed, and beyond them are three black spots obliquely placed; near the inner margin towards the base, and below the fold towards the middle, are two other black spots; the hinder margin and apex of the costa are spotted with black; cilia white, with a black dash immediately below the apex. Posterior wings pale fuscous; towards the inner margin white; cilia white. Abdomen white.

British specimens are extremely rare; the insect appears in June and July; the larva feeding on *Lithospermum* and *Pulmonaria* in May.

2. **bipunctella**, Fab. S. E. 668. 7 (1775).—*Echiella*, W. V.; Hüb.; Godart; Curt.; Treit.; Step.; Dup.; Zell.—*Hochenwartiella*, Rossi. *Alis anticis costam versus saturate fuscis, dorsum versus albis, margine postico, apiceque costæ nigro-punctatis, abdomine luteo*. Exp. al.  $11\frac{1}{2}$  lin.

Head and face white. Palpi black; terminal joint white. Antennæ fuscous. Anterior wings dark fuscous along the costa; along the inner margin white, with two dark fuscous spots in the fold, one before and one in the middle, attached to the dark half of the wing; beyond the middle the white projects a little into the dark fuscous, but immediately beyond is again a dark fuscous projection into the white; the hinder margin and apex of the costa, which latter is white, are spotted with black; cilia whitish, with a dark fuscous dash immediately below the apex. Posterior wings whitish-grey, with paler cilia. Abdomen dirty yellow.

This pretty species is no commoner with us than the preceding; it appears in May and August; the larva feeds on (*Echium vulgare*) viper's bugloss in July and October.

3. **funerella**, Fab. Man. ii. 247. 74 (1787); Hüb.; Godart; Treit.; Step.; Dup.; Zell.—*funerea*, Haw. Alis anticis latioribus albis *postice nigris*, *costa* præter maculam albam pone medium *late irregulariterque nigra*, punctis duobus basim versus nigris. Exp. al.  $7\frac{1}{2}$  lin.

Head white; in the middle black. Face white. Palpi dark grey; terminal joint black. Antennæ dark fuscous. Anterior wings rather broad, white, with deep black spots and markings; at the base of the costa is an oblong spot, and short streak immediately beyond it on the costa; beyond is an *irregular-shaped costal blotch* (leaving only a triangular white spot on the costa beyond the middle), *which projects towards the base and towards the inner margin, and generally unites with the black apical portion of the wing*; in the latter, towards the hinder margin, are a few whitish scales; towards the base, near the inner margin, are two round black spots obliquely placed; cilia dark grey, with the tips whitish. Posterior wings dark fuscous; towards the inner margin whitish, with paler cilia.

Long doubted as a British species; recently taken in tolerable plenty in the Cambridgeshire fens in June.

4. **decemguttella**, Hüb. Tin. 303 (1816); Treit.; Frey.; Dup.; Zell.—*dodecea*, Haw.; Step. Alis anticis albis grisescente-suffusis, *punctis undecim magnis irregularibus atris*. Exp. al. 10 lin.

Head and face white. Palpi black; internally whitish; terminal joint whitish, with a black ring at the base and another towards the apex. Antennæ dark fuscous. Anterior wings white, with a slight greyish tint, *with eleven rather large dark black spots*, viz. two small at the base, one on the subcostal vein, and one on the fold; nearly following the line of the fold are four others, the first in the fold not far from the base, the second a little below the fold, the third is larger, and lies in the fold about the middle of the wing, the fourth and largest is above the fold towards the anal angle; on the disc before the middle are two spots, the anterior nearer to the costa; in a line with the lower one on the disc are two others, one beyond the middle, the other towards the hinder margin, and near the costa, nearly between these two, is another spot; cilia whitish. Posterior wings dark greyish-fuscous, with paler cilia.

Not common; the perfect insect appears in May and June, sitting on the tops of the flowers of the *Lithospermum* (according to the interesting account of its habits given by Mr. Harding, in the 'Zoologist' for 1848, p. 2332). The larva feeds on that plant in September and October.

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Genus V. **CHALYBE.**

**CHALYBE**, Dup. L. F. x. 343 (1836). *Psecadia* p., Zell.

The much shorter, *corrected*, not reflexed palpi, as well as the general *facies* of the insect, point this out as distinct from *Anesychia*; the want however of a series of specimens for investigation prevents me from giving the generic characters more in detail. Whereas in *Anesychia* the ground-colour of the anterior wings is *white*, with black spots and markings, in this genus the ground-colour is *black* or *blue-black*, with deep black spots. Five very closely allied species are known on the continent, one of which was detected in Sutherlandshire last May, by Mr. Buxton.

1. **pyrausta**, Pallas, Reisen, i. 176 (1774); Zell. (Ent. Ztg. 1844). —*atropunctella*, Wenner (Thunb.). Alis anticis *atro-fumosis*, punctis tribus atris *longitudinaliter* dispositis; alis posticis *fumosis*; ano *luteo*. Exp. al. 8 lin.

Head, face, palpi, and antennæ black. Anterior wings *sooty-black*, with *three* deep black spots, *placed nearly in a line longitudinally*, the first not far from the base, the second a little before the middle, both on the fold, the third and most conspicuous at the termination of the discoidal cell; cilia *sooty-black*. Posterior wings and cilia dark smoky-grey. The posterior half of the abdomen yellow.

A single specimen of this conspicuous species was taken in Sutherlandshire, last May, by Mr. Buxton.

Genus VI. **PRAYS.**

*Prays* p., Hüb. *Telea* p., Step. *Ædia* p., Dup. *Ecophora* p., Zell.

Caput obtusum, pilis appressis. Ocelli nulli. Palpi labiales breviusculi, *filiformes*, apicem versus *vix attenuati*. Haustellum medioere, *nudum*. Alæ anteriores oblongæ, posteriores latiusculæ breviter ciliatæ. Alæ anteriores: stigma distinctum; venæ apicalis ramus inferior *sub* apicem exit; subdorsalis longissime furcata; posteriores: cellula costalis *abbreviata*.

Head obtuse, smooth. Ocelli none. Labial palpi rather short, *filiform*, *hardly attenuated* towards the apex. Tongue of moderate length, *naked*. Anterior wings oblong; posterior rather broad, with short cilia. In the anterior wings the stigma is distinct; the lower branch of the apical vein runs *into the hinder margin*; the subdorsal vein is furcate for a considerable length. In the posterior wings the costal cell is *abbreviated*.

The perfect insect of the only species in the genus has a considerable *prima facie* resemblance with *Anesychia*. Its larva



feeds on the buds of the ash-tree, and forms an open network cocoon, but its habits have not yet been fully investigated.

1. **Curtisellus**, Don. B. I. ii. pl. 63 (1793); Step.—*Curtisii*, Haw.—*maculella*, Fab.—*cænobilella*, Hüb.; Dup.—*fraxinella*, Bjerk.?—var. *rustica*, Haw. Alis anticis albis, macula magna costali nigra, basin versus attenuata, in medio plicam superante, dorso basin versus striis abbreviatis, transversis, fuscis, margine postico nigro nebulosis (var. alis anticis unicoloribus obscure fuscis). Exp. al.  $7\frac{1}{2}$  lin.

Head and face white. Palpi dark fuscous; tips of the terminal joint white. Antennæ dark fuscous. Anterior wings white, with a dark fuscous, almost black blotch on the costa, extending from the base to beyond the middle of the wing; at the base it is extremely narrow, but in the middle it reaches across the fold; in it, on the costa beyond the middle, is a small whitish spot; on the inner margin near the base are some short transverse fuscous streaks, along the hinder margin are several dark fuscous or black blotches; cilia dark fuscous. Posterior wings greyish-fuscous, with paler cilia. In the variety *rustica* of Haworth, the head and face are dirty ochreous, and the anterior wings unicolorous, dingy fuscous. Intermediate specimens, in which the costal blotch is dimly shadowed, occur.

Not uncommon among ash-trees in June and July. Mr. Henry Doubleday found the full-fed larvæ descending from the trees by their threads, and bred from them both the typical insect and the variety. Mr. Preston had previously found the larva feeding on the hardly-developed leaf-buds of the ash.

#### Family IV. PLUTELLIDÆ.

Caput hirsutum. Palpi labiales articulo secundo infra in fasciculum producto. Antennæ in quiete porrectæ. Larva fusiformis, non sacco-phora.

Head rough. Labial palpi with the second joint furnished beneath with a projecting tuft of scales. Antennæ porrected in repose. Larva fusiform, not living in a case.

The porrected antennæ of these insects give them a certain resemblance with the *Coleophoridae*, from which the broader posterior wings and rough head sufficiently distinguish them, independent of the difference in the habits of the larvæ.

The greater breadth of the anterior wings of the only species known in the first genus, does not interfere with its affinities in other respects, and its true place is certainly here.

The four genera in this family may be easily distinguished thus:—

- a.* Antennæ thickened with scales, towards the base. 1. **EIDOPHASIA.**  
*a a.* Antennæ not thickened with scales, towards the base.  
*b.* Posterior wings with moderate cilia.  
*c.* Posterior wings rather narrow. 2. **PLUTELLA.**  
*c c.* Posterior wings rather broad. 3. **CEROSTOMA.**  
*b b.* Posterior wings with long cilia. 4. **THERISTIS.**

### Genus I. **EIDOPHASIA.**

**EIDOPHASIA**, Step. Entom. 418 (*Add. et Corrig.* 1842). *Parasemia*, Step. Ent. 202.

**Caput hirsutum.** Antennæ *supra basin squamis incrassatæ*, cæterum crenato-dentatæ, articulis subelongatis. Haustellum breve, squamatum. Palpi maxillares nulli. Palpi labiales tenues, articulo secundo infra in fasciculum tenuem producto, tertio aculeiformi. Alæ *oblongæ*, mediocriter ciliatæ, *apice obtuso*. Alæ anteriores: vena apicalis simplex ante apicem exit, infra eam rami sex, quorum infimus cum penultimo non coalescit; cellula secundaria bene indicata: vena subdorsalis longe furcata; alæ posteriores: cellula costalis elongata; vena subcostalis simplex supra apicem exit, cum sequente non coalescit; vena mediana trifida.

Head rough. Antennæ *thickened with scales towards the base*, the remainder almost dentate, with rather elongate joints. Tongue short, clothed with scales. Maxillary palpi undeveloped. Labial palpi slender, with the second joint produced beneath in a slender tuft; third joint acuminate. Wings *oblong*, with moderate cilia; *the apex obtuse*. In the anterior wings the simple apical vein runs into the costa before the apex; below it six veins run into the hinder margin, of which the lowermost is not united with the penultimate; the secondary cell is well indicated; the subdorsal vein is forked for a considerable length. In the posterior wings the costal cell is elongate, the simple subcostal vein runs into the costa before the apex, and is not united with the following; the median vein is trifid.

Only one species is yet known in this genus, and of the habits of that but little has been observed; according to Mr. Sircom's remarks, it flies in woods among oaks at dusk, keeping very near the ground.

1. **Messingiella**, F. v. R. 193. pl. 68. f. 3 (1839).—*transversella*, Step. (Entom.) Alis anticis fuscis, fascia fere recta costam versus attenuata, dilute lutea, macula costæ pone medium, fere obsoleta, pallida. Exp. al. 6 lin.

Head and face ochreous-fuscous. Palpi fuscous; terminal joint paler. Antennæ fuscous. Anterior wings fuscous, with a nearly straight pale yellow fascia, almost in the middle, attenuated on the costa, where it is rather nearer to the base; a small nearly obsolete pale spot lies on the costa beyond the middle; cilia pale fuscous. Posterior wings grey-

ish-fuscous, with paler cilia. In some specimens the fascia of the anterior wings is abbreviated, hardly reaching beyond the fold, appearing as a spot on the inner margin.

Not common; the perfect insect appears in June.

## Genus II. **PLUTELLA.**

PLUTELLA, Schr. F. B. ii. 169 (1802); Zett. *Cerostoma*, Curt.; Step. *Alucita* p., Fab.; Lat.; Dup. *Anadelia* p., Hüb. *Ypsolophus* p., Haw. *Plutella* p., Treit.; Zell.

Caput hirsutum. Antennæ simplices, articulis valde distinctis. Haustellum mediocres, nudum. Palpi maxillares filiformes, breves. Palpi labiales articulo secundo infra in fasciculum subattenuatum producto, tertio erecto, aculeiformi. Alæ *elongatæ*, ciliis longiusculis infra alarum apicem non impressis, *posteriores lanceolatæ*. Alæ anteriores: vena apicalis simplex ante apicem excurrit, infra eam rami sex, quorum infimus a penultimo longe distat; *penultimus et antepenultimus ex eodem puncto* prodeunt; cellula secundaria indicata; vena subdorsalis longe furcata; alæ posteriores: cellula costalis subito attenuata; vena apicalis *simplex*; vena subapicalis furcata. Folliculus larvæ *reticuliformis*.

Head rough. Antennæ not thickened with scales, with the joints very distinct. Tongue of moderate length, naked. Maxillary palpi short, filiform. Labial palpi with the second joint prolonged beneath in a rather slender tuft; the third joint erect, acuminate. Wings *elongate*, with rather long cilia not indented below the apex; the *posterior wings lanceolate*. In the anterior wings the simple apical vein runs into the costa before the apex; below it are six veins from the discoidal cell, of which the lowermost is remote from the penultimate, and the *penultimate and antepenultimate proceed from the same point*; the secondary cell is faintly indicated; the subdorsal vein is furcate for a considerable distance. In the posterior wings the costal cell is suddenly attenuated, the apical vein is *simple*, and the subapical vein furcate. The larva constructs an *open network* cocoon. (*P. Dalella* shows several discrepancies from the generic characters above given: the maxillary palpi are rather long; the second joint of the labial palpi is scarcely produced to a tuft; and in the posterior wings the costal cell is more gradually attenuated, and the subapical vein is simple.)

The insects of this genus make but short, rather straight flights, speedily settling again on the low herbage. *P. porrectella* appears solely attached to the *Hesperis matronalis*, but *P. Cruciferarum* feeds with avidity most of the Cruciferous plants. In the year 1851 this insect was excessively abundant throughout the country, and from Southend in Essex, to Belfast, the same enormous multiplication of the species was observed; the turnip-growers

thought some new blight had fallen upon their crops, but fortunately subsequent years have not shown a continuance of the inordinate numbers of this species, which was probably checked by a timely increase of its parasitic foes.

There are only four British species, of which the first three are very similar in markings.

1. **Cruciferarum**, Zell. Ent. Ztg. 1843. p. 283.—*Xylostella*, Hüb.; Treit.; Step.; Dup.—♀ *maculipennis*, Curt.; Step.; Sta. Alis anticis griseo-fuscis, saturate fusco punctatis, dorso dilute ochreo, dentibus tribus rotundatis plicam superantibus (♀ dorso vix distincte dilutiore, nebulis plicæ fuscis). Exp. al.  $7\frac{1}{2}$  lin.

Head, face, and palpi greyish-ochreous. Antennæ whitish, annulated with fuscous. Anterior wings greyish-fuscous, spotted with dark fuscous; the inner margin pale ochreous, with three rounded projections across the fold (in the ♀ the inner margin is less decidedly paler, and there are some fuscous spots along the fold); cilia grey, varied with fuscous. Posterior wings grey, with paler cilia.

Always common, and sometimes very abundant among cabbages and other Cruciferous plants; the perfect insect appears in May and August; the larva in June, July, and September.

2. **porrectella**, Linn. S. N. (10). 540. 282 (1758); W. V.; Treit.; Step.; Dup.—*Hesperidella*, Hüb.—*Hesperidis*, Haw.—*Fallennictus*, Dahlb. (N. A. II.) Alis anticis albidis, ochreo vel fusciscentis striatis, dorso dilutiore, vitta sinuata supra plicam saturate fusca, margine postico fusco nigro-punctato. Exp. al. 7 lin.

Head, face, and palpi whitish. Antennæ whitish. Anterior wings whitish, streaked with ochreous or pale fuscous, the inner margin paler; a sinuated fuscous streak above the fold runs from the base nearly to the apex; the hinder margin is fuscous, spotted with black, and along the costa and inner margin are some small dark fuscous spots; cilia whitish, varied with black. Posterior wings grey, with paler cilia.

Common in gardens among *Hesperis matronalis* in May and July. The larva feeds on that plant in April and June.

3. **annulatella**, Curt. B. E. fo. 420 (1832); Step.—*bicingulata*, H.-S. Alis anticis dilute griseo-ochreis, costam versus valde fuscosuffusis, dorso dilutiore, dentibus duabus plicam superantibus, vitta sinuata plicæ usque ad medium saturate fusca, margine postico fusco-punctato. Exp. al. 8 lin.

Head and face greyish-ochreous. Palpi pale ochreous. Antennæ ochreous-fuscous. Anterior wings pale greyish-ochreous, much suffused with fuscous towards the costa; the inner margin paler, with two projections across the fold, the first in the middle, the other towards the anal angle; a sinuated dark fuscous streak runs above the fold to a little before the middle; the hinder margin is spotted with fuscous; cilia pale greyish-ochreous. Posterior wings grey, with paler cilia.

A northern species, in few collections: my specimens were taken on the coast near Belfast in September.

4. **Dalella**, Sta. Cat. p. 11 (1849).—*vittella*, Hüb. Tin. 164. Alis anticis griseis, griseo-fusco marmoratis, postice albido-squamatis, triangularibus tribus dorsi dilutioribus, spatiis interjectis saturate griseo-fuscis, maculis duabus costæ pone medium fuscis, apice marginis postici nigropunctato. Exp. al. 10 lin.

Head, face, and palpi dark greyish-fuscon. Antennæ dark fuscous. Anterior wings grey, marbled with greyish-fuscous, posteriorly with some whitish scales; on the inner margin are three pale triangles, the first near the base very small, the second in the middle reaching to the fold, and sometimes produced posteriorly beyond it, and the third beyond the middle reaching beyond the fold; the spaces between these triangular marks are dark greyish-fuscous; on the costa beyond the middle are two fuscous spots; towards the apex of the hinder margin are two or three black spots; cilia greyish-fuscous, with two darker lines. Posterior wings grey, with paler cilia.

Not uncommon in the north of England and Scotland, in September. Many specimens have been taken near Iluddersfield by the Rev. J. Johnson.

### Genus III. CEROSTOMA.

CEROSTOMA, Lat. II. N. xiv. 247 (1802). *Harpipteryx* p., Curt. *Plutella* p., Zell. *Hypsolopha*, *Rhinosia* p., et *Harpipteryx* p., Treit.; Dup. *Harpipteryx*, *Hypsolopha*, et *Chætochilus*, Step.

Caput hirsutum. Antennæ simplices, vix crenulatæ. Haustellum mediocrc, nudum. Palpi maxillares distincti, filiformes. Palpi labiales, articulo secundo infra in fasciculum producto, tertio erecto aculeiformi. Alæ anteriores elongatæ vel oblongæ, interdum caudatæ; alæ posteriores ante angulum analem leviter retusæ, lanceolatæ, *mediocriter ciliatæ*; alæ anteriores: vena apicalis furcata supra et infra apicem excurrit, infra eam rami quinque; cellula secundaria *perfecta*; alæ posteriores: cellula costalis elongata, postice attenuata; vena apicalis *furcata*. Folliculus larvæ *solidus*.

Head rough. Antennæ not thickened, slightly indented between the joints. The tongue of moderate length, naked. Maxillary palpi distinct, filiform. Labial palpi with the second joint prolonged beneath in a tuft; terminal joint erect, acuminate. Anterior wings elongate or oblong, sometimes caudate; posterior wings slightly emarginate before the anal angle, lanceolate, with *moderately long cilia*. In the anterior wings the furcate apical vein runs out above and below the apex; below it are five veins from the discoidal cell; the secondary cell is *complete*. In the posterior wings the elongate costal cell is poste-

riorly attenuated; the apical vein is *furcate*. The larva forms a *close* silken cocoon.

The insects of this genus appear at the end of summer and autumn; many of the late species hibernating, and being again met with in the spring; when at rest they are easily disturbed, but generally drop only from one portion of the bush or hedge to another, and rarely make use of their wings. The larva of *C. xylostella* (green, with a broad red stripe on the back) is the most generally met with: it is attenuated anteriorly, extremely active, and, when full-fed, constructs a very firm, close silken cocoon.

The venuration of the anterior wings is not identical in all the species, as may be seen from the following table:—

- A. Apical vein *furcate*; below it five veins from the discoidal cell.
  - B. The three lowermost of these veins are not united at their origin. Species 1–5.
  - B B. The two lowermost of these veins are united at their origin. Species 11, 12.
- A A. Apical vein *simple*; below it six veins from the discoidal cell.
  - c. The three lowest of these veins are not united at their origin. Species 7.
  - c c. The penultimate and antepenultimate of these veins, proceed from the same point. Species 6, 8–10.

The twelve British species may (without denuding the wings) be placed in the following table:—

- a. The cilia of the anterior wings not retuse below the apex. Sp. 1–4.
- a a. The cilia of the anterior wings retuse below the apex. Sp. 5–7.
- a a a. The anterior wings slightly caudate. Species 8–10.
- a a a a. The anterior wings caudate. Species 11, 12.

1. **sequella**, Clerck, l. Pl. x. f. 14 (1759); Linn.; Fab.; Godart; Haw.; Treit.; Step.; Dup.—*nyctemerella*, W. V.; Fab.—*pusiella*, Linn.? *Alis anticis albis, vitta dentata dorsali nigra, striis numerosis costæ abbreviatis nigris, apice costæ margineque postico nigrescente-punctatis.* Exp. al. 8 lin.

Head, face, and palpi white. Antennæ blackish. Anterior wings *white*, with an indented black blotch on the inner margin, reaching beyond the middle; at the base and between the indentations it touches the fold, and at its hinder end it crosses the fold; along the costa are several short black streaks, a more conspicuous one in the middle, sloping inwardly, reaches nearly half across the wing, and an irregular black mark beyond the middle of the costa, almost unites with the termination of the blotch on the inner margin; along the apex of the costa and hinder margin, and at the anal angle, are some black or blackish marks; cilia white at the apex, in the middle of the hinder margin and at the anal angle blackish. Posterior wings grey, with paler cilia.

Not common, appears in July and August. The larva (according to Madame Lienig) feeds on limes and willows, in May and June.

2. **vittella**, Linn. S. N. (10) 538. 264 (1758); Cl.; Fab.; Haw.; Dup.—*vitella*, Hüb.; Step.; Zell.—*sisymbrella*, W. V.—var. *maurellus*, Step. Alis anticis *griseis* saturatiore variegatis, vitta dentata dorsali nigra, puncto ad angulum analem, striaque apicis nigris. Exp. al.  $8\frac{1}{2}$  lin.

Head, face, and palpi *grey*. Antennæ dark fuscous. Anterior wings *grey*, mottled with darker, with a black blotch on the inner margin, from near the base to beyond the middle, indented or interrupted in the middle and not reaching to the fold; a small spot at the anal angle and a streak at the apex of the wing black; cilia pale grey, opposite the apical streak dark grey. Posterior wings pale grey, paler towards the base, with paler cilia. In the variety *maurellus*, Step., the entire dorsal half of the anterior wings is blackish, only a narrow space along the costa being greyish-ochreous.

Sometimes not uncommon among elms in July and August. The larva feeds in May on elm, beech, and (according to Madame Lienig) honeysuckle.

3. **radiatella**, Don. B. I. iii. pl. 77 (1794); Step.—*radiatus*, Haw.—*variella*, Hüb.; Step.—*varians*, Haw.—*fissella*, Hüb.; Step.; Treit.; Dup.; Zell.—*fissus*, Haw. Alis anticis ochreis, griseo vel rufo mixtis, fuscisve, puncto saturate fusco pone medium supra plicam; interdum vitta media saturate fusca, interdum striis numerosis pallidis. Exp. al. 8 lin.

*A most variable species.* Head, face, and palpi greyish-ochreous or fuscous. Antennæ pale or dark fuscous. Anterior wings either greyish-ochreous, pale ochreous, reddish-ochreous, or fuscous, with a dark fuscous spot above the fold beyond the middle; sometimes with a thick dark fuscous streak along the middle of the wing, sometimes with numerous pale streaks upon a dark ground; cilia usually paler than the wing, frequently with the apex dark. Posterior wings grey, with paler cilia.

Abundant among oaks in August and September; hibernated specimens are not unfrequent in the spring. The larva, which (according to Madame Lienig) is almost as variable as the perfect insect, feeds on oaks in May.

4. **costella**, Fab. S. E. 668. 10 (1775); Haw.; Treit.; Step.; Dup.—*maculella*, Fab.? Alis anticis griseo-ochreis, vel rufo-ochreis, *macula basali prope costam alba*, raro obsoleta, interdum puncto pone medium supra plicam saturate fusco, apice marginis postici fusco punctato. Exp. al. 8 lin.

Head, face, and palpi whitish-ochreous. Antennæ whitish, with fuscous annulations. Anterior wings variable in colour, greyish-ochreous, reddish-ochreous, or almost dark brown, *with a white blotch* (rarely ob-

solete) towards the costa extending from the base to the middle of the wing; there is frequently a conspicuous dark fuscous spot above the fold beyond the middle, and the costal half of the wing is frequently spotted with fuscous; at the apex of the hinder margin are some fuscous spots; cilia paler than the wing, with a fuscous streak in the apex. Posterior wings grey, with paler cilia.

The perfect insect occurs from the end of July to September, among oaks, less commonly than the preceding.

5. **sylvella**, Linn. S. N. (12) 893. 413 (1767); Fab.; Hüb.; Treit.; Step.; Dup.—*bifasciatus*, Haw. Alis anticis dilute ochreis, vix fusco reticulatis, fasciis duabus obliquis, costam versus interruptis, saturate fuscis. Exp. al. 9 lin.

Head, face, and palpi pale ochreous. Antennæ whitish-ochreous, annulated with fuscous. Anterior wings pale ochreous, slightly reticulated with fuscous, with two oblique dark fuscous fasciæ (one before, the other beyond the middle), somewhat interrupted towards the costa; cilia pale ochreous. Posterior wings grey, with paler cilia.

Not uncommon among oaks in August and September. The larva feeds (according to Madame Licnig) on the oak in June.

6. **alpella**, W. V. 135. 20 (1776); Fab.; Treit.—*persicellus*, Step.? Alis anticis dilute ochreis, obsolete fuscescente-reticulatis, striis duabus dorsi obliquis, plicam vix superantibus, fuscis. Exp. al. 8 lin.

Head, face, and palpi pale ochreous. Antennæ whitish-ochreous, annulated with fuscous. Anterior wings pale ochreous, indistinctly reticulated with pale fuscous, with two oblique fuscous streaks from the inner margin (one before, and one beyond the middle), neither reaching more than half across the wing; cilia pale ochreous. Posterior wings grey, paler towards the base, with pale greyish-ochreous cilia.

Not scarce among oaks in August.

7. **lucella**, Fab. S. E. 667. 4 (1775); Schr.—*antennella*, W. V.; Treit.; Step.; Dup.—*retusana*, Borgst.—*mucronella*, Hüb.; Haw. Alis anticis ochreis fuscescente-reticulatis, dorso obsolete albo usque pone medium; capite albo. Exp. al. 8 lin.

Head and face white. Palpi white; second joint beneath ochreous. Antennæ white, annulated with black. Anterior wings ochreous, reticulated with pale fuscous, with the inner margin indistinctly white to beyond the middle; near the inner margin are two dark ochreous blotches, one towards the base, the other beyond the middle; cilia pale reddish-ochreous. Posterior wings grey, with paler cilia.

Not uncommon in many localities in July.

8. **horridella**, Treit. E. S. x. iii. 191 (1835); Dup.; Guénée?—*falcella*, Step.—*subfalcatella*, Curt. Alis anticis saturate fuscis violaceo tinctis, maculis tribus scabris sub plicam nigris, macula sinuata obsoleta dorsali saturate fusca. Exp. al. 9 lin.



Head and face greyish-fuscos. Palpi pale grey; second joint beneath greyish-fuscos. Antennæ fuscous. Anterior wings *dark fuscous, with a slight violet tint*, with three tufts of elevated black scales below the fold, and an obsolete sinuated dark fuscous blotch along the inner margin; cilia greyish-fuscos. Posterior wings pale greyish-fuscos, with paler cilia.

Taken occasionally in the New Forest in July, among the wild apple-trees.

9. **scabrella**, Linn. F. S. 1446 (1761); Fab.; Treit.; Step.; Curt. *bifissella*, W. V.—*pterodactylella*, Hüb.; Haw.—*Helwigella*, Fab.? Alis anticis *dilute griseo-ochreis*, fusco-striatis, maculis tribus scabris subplicam nigris, macula sinuata dorsali saturate fusca, margine postico saturate fusco-punctato. Exp. al. 10 lin.

Head pale greyish-ochreous; in the middle fuscous. Face pale greyish-ochreous. Palpi pale greyish-ochreous; second joint beneath dark fuscous; terminal joint with a fuscous ring near the base. Antennæ pale ochreous. Anterior wings *pale greyish-ochreous*, streaked with fuscous; towards the inner margin almost suffused with dark fuscous, with three tufts of elevated black scales below the fold, and a sinuated dark fuscous blotch along the inner margin; hinder margin spotted with dark fuscous; cilia greyish-fuscos. Posterior wings pale greyish-fuscos, with paler cilia.

Not scarce in the New Forest and near Bristol, in July and August. The larva feeds on apple-trees in May.

10. **asperella**, Linn. F. S. 1447 (1761); W. V.; Fab.; Haw.; Treit.; Step.; Dup.—*Clairvillella*, Fab.—*falcatella*, Don. Alis anticis *luteo-albis*, dilute fusco nebulosis, *macula magna triangulari* interne scabra in medio dorsi, fusca et cæruleo-nigra, puncto marginis postici cæruleo-nigro. Exp. al. 10 lin.

Head, face, and palpi yellowish-white. Antennæ yellowish-white, with pale fuscous annulations. Anterior wings *yellowish-white*, clouded with pale fuscous, *with a large triangular blotch on the middle of the inner margin*, consisting of several tufts of raised scales, *pale fuscous* on the fold, and *bluish-black* along the inner margin; in the middle of the hinder margin is a small bluish-black spot; cilia yellowish-white, below the apex dark fuscous. Posterior wings grey, with paler cilia.

This beautiful insect is extremely rare with us; it appears from the end of August to October. The larva feeds on apple-trees in June.

11. **nemorella**, Linn. S. N. (10) 536. 247 (1758); Wenner (Thun.); Step.—*hamella*, Hüb.; Treit.; Dup.—*cultrea*, Haw. Alis anticis albidis, venis ochreo fusco striatis, puncto plicæ ante medium nigro. Exp. al. 11 lin.

Head and face whitish. Palpi whitish; second joint beneath pale fuscous. Antennæ whitish, annulated with pale fuscous. Anterior

wings whitish, with the veins streaked with ochreous or fuscous, and with numerous scattered fuscous scales; on the fold before the middle is a black spot; cilia pale greyish-ochreous. Posterior wings pale grey, with pale greyish-ochreous cilia.

Not scarce in the neighbourhood of Huddersfield: the imago appears in June and July. The larva feeds on the bark of the honeysuckle in May.

12. **Xylostella**, Linn. S. N. (12) 890. 389 (1767).—*dentella*, Fab.; Haw.; Step.—*harpella*, W. V.; Hüb.; Treit.; Dup.; Zell.—*harnatus*, Fab. Alis anticis rufo-brunneis, dorso late luteo-albo, stria tenuissima obliqua pone medium, plicam superante. Exp. al. 10 lin.

Head and face yellowish-white; at the sides brown. Palpi yellowish-white; second joint beneath brown. Antennæ white, annulated with black. Anterior wings reddish-brown, darkest above the fold and in the middle of the wing, posteriorly paler and of a greyish tint; the inner margin rather broadly yellowish-white, with an extremely narrow oblique white streak, running half across the wing beyond the middle; in the extreme apex is a fuscous streak; cilia pale fuscous. Posterior wings dark grey, with paler cilia.

Common in gardens and hedges among honeysuckle in July and August. The larva feeds on the leaves of the honeysuckle in May.

#### Genus IV. **THERISTIS.**

*Theristis* p., Hüb.; Step. *Harpiteryx* p., Treit.; Curt.; Dup. *Plutella* p., Zell.

Capilli hirsuti. Antennæ simplices. Haustellum mediocre, nudum. Palpi maxillares filiformes. Palpi labiales, articulo secundo in fasciculum tenuem longum producto, articulo tertio erecto brevi aculeiformi. Alæ anteriores elongatæ acuminatæ; alæ posteriores (ante angulum analem leviter retusæ) lanceolatæ, longe ciliatæ.

Head rough. Antennæ simple. Tongue of moderate length, naked. Maxillary palpi slender, filiform. Labial palpi with the second joint prolonged into a long slender tuft; the third joint much shorter than this tuft, erect, acuminate. Anterior wings elongate, acuminate; posterior wings (slightly emarginate before the anal angle) lanceolate, with long cilia.

Only one species is known in this genus; it appears in the autumn, and, hibernating, is again seen in spring.

1. **caudella**, Linn. S. N. (12). 894. 417 (1767).—*Panzerella*, Don.; Curt.—*cultrella*, Hüb.; Treit.; Dup.—*acinacidella*, Hüb.; Step. Alis anticis dilute griseo-ochreis, stria supra plicam ex basi usque ad medium, maculaque plicæ ante medium, saturate fuscis. Exp. al. 13½ lin.

Head and face pale greyish-ochreous. Palpi pale greyish-ochreous; tuft of the second joint beneath pale fuscous. Antennæ pale greyish-ochreous. Anterior wings pale greyish-ochreous, with a dark fuscous streak above the fold, from the base to beyond the middle, a dark fuscous spot on the fold before the middle, and another on the disc beyond the middle; cilia pale ochreous. Posterior wings whitish-grey, with whitish-ochreous cilia.

In the variety *acinacidella* of Hübner, the anterior wings are very much streaked with dark fuscous, and there is an additional dark fuscous spot towards the inner margin near the base.

Not common; most frequently found on the chalk; appears in August and September, and again in spring. The larva feeds on the spindle in June and July.

## FAMILY V. GELECHIDÆ.

*Caput læve. Palpi labiales recurvati, raro breves, interdum articulo secundo in fasciculum producto. Alæ posteriores latiusculæ, sæpe trapezoidales vel ovato-lanceolatae, raro acuminatae (Pancalia, Butalis). Larva pedibus 16 prædita.*

*Head smooth. Labial palpi recurved, generally long, sometimes with the second joint prolonged as a tuft. Posterior wings rather broad, often trapezoidal, or ovate-lanceolate, rarely acuminate (Pancalia, Butalis). Larva with sixteen feet.*

There is great discrepancy between the species composing the family, and no doubt future investigations, and the study of exotic forms, will enable us to subdivide it. Many individual genera are perhaps only types of extensive families, which have no other representatives in the temperate climate of Europe; and the discovery of species in India, Brazil, etc., may hereafter show that these isolated species are there represented more numerously, just as we find to be the case among the NOCTUINA with *Culpe Thalictri* and *Calyptra libatrix*, which, though anomalous among our European species, are the representatives of extensive tropical families.

The genus *Gelechia*, which forms so important a part of this family, is far more numerous in species than any other genus of TINEINA with which we are acquainted. In some of the genera of this family (*Phibalocera*, *Harpella*, *Hypercallia*, and *Dasyceera*), the species are remarkably for their gay colouring; but the great bulk of the species in the other genera, would, in ordinary parlance, be termed inconspicuous insects. Many of the species keep themselves so well concealed, that they are rarely met with in the

perfect state. *Harpella*, some of the *Ecophora*, and *Gelechia* fly in the early morning, but most of the species fly in the evening dusk.

The twenty-five genera represented in this country, may be arranged in the following table:—

- a.* Posterior wings broad, or emarginate before the apex.
  - b.* Second joint of the palpi not very long.
    - c.* Second joint of the palpi thin.
      - d.* Anterior wings truncate.
        - e.* Antennæ shorter than the anterior wings. 1. ORTHOTELIA.
        - e e.* Antennæ longer than the anterior wings. 4. PHIBALOCERA.
      - d d.* Anterior wings ovate. 2. SEMIOSCOPIS.
    - c c.* Second joint of the palpi *considerably* thickened beneath with scales.
      - f.* Anterior wings ovate, with raised tufts. 3. ENICOSTOMA.
      - f f.* Anterior wings emarginate below the apex. 5. EXÆRETIA.
      - f f f.* Anterior wings ovate, smooth. 6. DEPRESSARIA.
    - c c c.* Second joint of the palpi *slightly* thickened beneath with scales.
      - g.* Terminal joint of the palpi thin. 8. GELECHIA.
      - g g.* Terminal joint thickened above with scales.
        - h.* Posterior wings *deeply* emarginate before the apex. 9. PARASIA.
        - h h.* Posterior wings *slightly* emarginate before the apex.
          - i.* Anterior wings smooth. 11. CHELARIA.
          - i i.* Anterior wings rough. 7. PHORICOPTERA.
    - c c c c.* Second joint of the palpi with loose projecting scales. 10. CLEODORA.
    - c c c c c.* Second joint of the palpi with a projecting tuft.
      - k.* Anterior wings not emarginate below the apex.
        - l.* Anterior wings rather acute. 12. ANARSIA.
        - l l.* Anterior wings rounded. 13. YPSOLOPHUS.
      - k k.* Anterior wings emarginate below the apex.
        - m.* Terminal joint of the palpi concealed in the scales of the second joint. 14. APLOTA.
        - m m.* Terminal joint of the palpi projecting beyond the scales of the second joint.
          - n.* Cilia of the anterior wings without markings. 15. NOTIIRIS.
          - n n.* Cilia of the anterior wings with markings. 16. SOPHRONIA.
    - b b.* Second joint of the palpi very long.
      - o.* Second joint of the palpi very much thickened with scales.
        - p.* Anterior wings elongate. 17. PLEUROTA.
        - p p.* Anterior wings oblong. 18. HARPELLA.

*o o.* Second joint of the palpi not much thickened with scales.

19. HYPERCALIA.

*a a.* Posterior wings narrow, ovate or ovate-lanceolate.

*q.* Antennæ thickened with scales towards the base. 20. DASYCERA.

*q q.* Antennæ not thickened with scales towards the base.

*r.* Posterior wings with a transparent patch at the base. 23. ENDROSIS.

*r r.* Posterior wings with no transparent patch at the base.

*s.* Posterior wings not acutely pointed.

*t.* Antennæ slender. 21. OECOPHORA.

*t t.* Antennæ rather thick. 22. OEOCONIA.

*s s.* Posterior wings acutely pointed; body thick.

*u.* Anterior wings unicolorous, grey, or bronze, or with white spots and marks. 24. BUTALIS.

*u u.* Anterior wings reddish-orange, with gold spots. 25. PANCALIA.

Genus I. **ORTHOTÆLIA.**

ORTHOTÆLIA, Step. H. iv. 195 (1834). *Agonipteryx*, Treit. *Caulobius*, Dup. *Hæmylis*, Zell.

Capilli depressi. Ocelli nulli. Antennæ mediocres, articulis distinctis, ♂ microscope ciliatis. Haustellum brevissimum, nudum. Palpi maxillares brevissimi, distincti. Palpi labiales breviusculi, reflexi, cylindrici, tenuis, acuminati, articulo tertio secundo longiore. Abdomen elongatum, convexum. Alæ oblongæ, breviter ciliatæ, anteriores postice dilatatæ, truncatæ; posteriores ante angulum analem non sinuatæ.

Head smooth. Ocelli none. Antennæ of moderate length, with distinct joints, microscopically ciliated. Tongue very short, naked. Maxillary palpi very short, distinct. Labial palpi rather short, reflexed, cylindrical, slender, pointed; the third joint longer than the second. Abdomen elongate, convex. Wings oblong, with short cilia; the anterior dilated posteriorly and truncate; the posterior not sinuated before the anal angle.

Only one species is known in this singular genus; it flies at dusk among *Sparganium*, heavily and sluggishly. The larva, when young, mines the leaves, and afterwards bores down the stems of the *Sparganium*; it is dirty greyish-white, remarkably elongated, with a peculiarly flattened tail; it changes to a pupa inside the stem of the plant.

1. **Sparganella**, Wenner (Thun.) I. S. 7. 83 (1794).—*Sparganella*, Treit.; Dup.; Zell.—*venosa*, Haw.; Step.—*tostella*, Hüb. Alis anticis ochreis, dorso ac vitta media saturate fuscis, venis omnibus dilute luteis, punctis plicæ saturate fuscis. Exp. al. 10–11½ lin.

Head, face, and palpi pale ochreous. Antennæ ochreous, with darker annulations. Anterior wings ochreous, with the inner margin and a broad space between the fold and the costa dark fuscous, in which however all the veins are conspicuous as pale ochreous streaks; along the fold are four or five dark fuscous spots, of which the two first are the most conspicuous, and on the disc beyond the middle is a dark fuscous blotch; cilia fuscous. Posterior wings white, with a pale fuscous cloud near the base; cilia whitish.

In some specimens the anterior wings are of a uniform purplish-fuscous, with only the costa narrowly pale ochreous.

Not scarce among *Sparganium* in July and August. The larva feeds in the *Sparganium* in May and June.

## Genus II. SEMIOSCOPIS.

SEMIOSCOPIS, Hüb. V. 402 (1816); Step.; Zell. *Epigraphia*, Dup. *Lemmatophila* p., Treit.

Capilli appressi, in conulum frontalem producti. Ocelli parvi, pone oculos. Antennæ crassiusculæ, ♂ pubescentes. Haustellum breve, squamatum. Palpi labiales *arcuati*, articulo secundo *squamis appressis*, articulo tertio acuminato. Alæ mediocriter ciliatæ, *anteriores oblongo-ovatae*, posteriores ovatæ. Alæ anteriores: venæ apicalis furcatæ ramus inferior supra vel in apicem exit, infra eam venæ quinque, ultima interdum cum penultima connexa, valde curvus; vena subdorsalis furcata; alæ posteriores: vena apicalis ante apicem exit, infra eam venæ duæ e venula transversa, vena mediana bifida.

Head smooth, the scales prolonged in front, forming a little cone. Ocelli small, behind the eyes. Antennæ rather thick, in the ♂ pubescent. Tongue short, clothed with scales. Labial palpi *arched*; the second joint with *appressed scales*; the third joint *acuminate*. Wings with moderately long cilia; the anterior *oblong-ovate*; the posterior ovate. In the anterior wings, the lower branch of the forked apical vein runs out in or above the apex; below it are five veins from the discoidal cell, the last much curved, sometimes united with the penultimate; the subdorsal vein is furcate. In the posterior wings the apical vein runs out before the apex, below it are two veins from the transverse vein; the median vein is bifid.

There are only two British species in this genus, although two others are known on the continent. They both appear in the early spring, and being sometimes met with on palings and on the trunks of trees, are the objects of many a healthful walk to the young collector.

The structure of the palpi affords sufficient character at once to recognize our species.

- a. Terminal joint of the palpi almost porrected, short, naked. Sp. 1.  
 a a. Terminal joint of the palpi erect, rather long, clothed with scales.  
 Species 2.

1. **Avellanella**, Hüb. Tin. 27 (1801); Treit.; Step.; Dup.; Evers. Alis anticis dilute griseo-ochreis, fusco-irroratis, *stria basali plicæ, ante medium angulata et in medio disci desinente, saturate fusca*. Exp. al. 11 lin.

Head and face greyish-ochreous. Palpi dark fuscous; second joint internally at the base pale ochreous; terminal joint entirely pale ochreous. Antennæ greyish-fuscous. Anterior wings pale greyish-ochreous, somewhat irrorated with fuscous, *with a dark fuscous streak from the base along the fold, angulated towards the costa, and terminating on the disc about the middle of the wing*; on the costa beyond the middle is a pale fuscous blotch, and an angulated fuscous mark lies at the termination of the discoidal cell; hinder margin and apex of the costa spotted with dark fuscous; cilia pale grey. Posterior wings pale greyish-fuscous, with paler cilia.

Not common; appears at the end of March and beginning of April among birches.

2. **Steinkellneriana**, W. V. 130. 16 (1776); Schr.; Lienig.—*Steinkellnerana*, Fab.; Step.—*Steinkellneri*, Haw.—*Steinkellnerella*, Treit.; Dup.—*characterella*, Hüb. Alis anticis griseo-fuscis, vix rosco-tinctis, *macula angulata disci ante medium (angulo dorsum versus), striolaque postica angulata (angulo apicem versus) nigris*. Exp. al. 10 lin.

Head and face greyish-fuscous. Palpi greyish-fuscous; terminal joint somewhat ochreous, with a dark fuscous ring before the apex. Antennæ fuscous. Anterior wings greyish-fuscous, with a slight rosy tinge, with a small black spot near the base on the subcostal vein; *before the middle is an angulated black mark on the disc (with the angle towards the inner margin), beyond it is a dark fuscous cloud on the costa, below which is a small angulated black mark (the angle of which is turned towards the apex of the costa)*; the hinder margin and apex of the costa are delicately spotted with black; cilia greyish-fuscous. Posterior wings pale greyish-fuscous, with pale fuscous cilia internally darker.

Not scarce in April. The larva feeds (according to Madame Lienig) in August and September, on hawthorn and mountain-ash, between turned-down leaves.

### Genus III. ENICOSTOMA.

ENICOSTOMA, Step. II. iv. 226 (1834). *Gelechia* p., Zell.

Capilli superne suberecti, in conulum frontale producti. Ocelli nulli. Antennæ setacæ. Haustellum mediocre, squamatum. Palpi labiales arcuati; articulo secundo longo, squamis appressis; tertio brevi,

adscendente, acuminato. Alæ medioeriter ciliatæ, *anteriores latiusculæ ovatae*, posteriores ovatae ante apicem levissime retusæ. Alæ anteriores: vena apicalis furcata ante apicem exit, infra eam venæ quinque, venæ submedianæ apex, medianam valde approximans, incrassatus; vena subdorsalis furcata. Alæ posteriores: vena apicalis simplex ante apicem exit, infra eam venæ duæ c vena transversa; vena mediana trifida.

Head almost rough; scales produced in front in a little cone. Ocelli none. Antennæ setaceous. Tongue of moderate length, scaled. Labial palpi *arched*; the *second joint long*, with appressed scales; the third joint smooth, ascending, pointed. Wings with moderate cilia; the *anterior rather broad, ovate*; the posterior ovate, very slightly retuse before the apex. In the anterior wings the furcate apical vein runs out before the apex; below it are five veins from the discoidal cell; the apex of the submedian vein, which closely approximates to the median, is thickened; the subdorsal vein is furcate. In the posterior wings the simple apical vein runs out before the apex, below are two veins from the transverse vein; the median vein is trifid.

Only one species is known in this genus; it is occasionally beaten out of hedges, and, both in flight and when first seen in the net, has some resemblance to a *Sciaphila*. The pale green larva feeds in August and September, on the underside of the leaves of the sloe, spinning a slight web, and causing the leaves to assume a slightly deflexed form.

1. **lobella**, W. V. 138. 9 (1776); Hüb.; Schr.; Treit.—*Thunbergana*, Fab.; Step.—*Thunbergii*, Haw.—*lugubrella*, Dup. Alis anticis saturate griseis, punctis quinque scabris (tribus fere fasciam obliquam ante medium formantibus, duobus disci oblique positae pone medium) nigris. Exp. al. 8 lin.

Head and face dark grey. Palpi dark grey; terminal joint whitish, with the base and a ring before the apex black. Antennæ dark fuscous. Anterior wings dark grey, with five spots of elevated black scales, three before and two beyond the middle; the first three are placed obliquely in a transverse line, the other two are placed obliquely on the disc (the lower one being the posterior); the hinder margin is spotted with dark fuscous, and there are some small dark fuscous clouds along the costa; cilia pale grey. Posterior wings pale grey, with paler cilia.

Not scarce, in hedges in June. The larva plentiful in August and September on the sloe.

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#### Genus IV. **PHIBALOCERA.**

PHIBALOCERA, Step. H. iv. 192 (1834). *Carcina*, Zell. *Carcina* p., Hüb. *Lampros* p., Treit.



Capilli depressi, frons obtusa. *Antennæ alis multo longiores, articulis compressis.* Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales mediocres, adscendentes, articulo secundo longiore infra pilis appressis, apicem versus incrassato, tertio suberecto, tenui, acuminato. Alæ *oblongæ*, mediocriter ciliatæ, *anteriorum costa convexa, apice acuto.* Alæ anteriores: venæ apicalis rami supra et infra apicem exeunt; cellula secundaria indicata; venæ medianæ ramus primus a secundo *longissime* distat, secundus et tertius in furcam coaliti. Alæ posteriores: cellula costalis *latiuscula*; vena apicalis a sequente separata; vena mediana trifida.

Head smooth, in front obtuse. *Antennæ much longer than the wings;* the joints compressed. Tongue of moderate length, scaled. Maxillary palpi very short. Labial palpi moderately long, ascending; the longer second joint with appressed scales beneath, thickened towards the apex, third joint nearly erect, slender, pointed. Wings *oblong*, with moderate cilia; *the costa of the anterior wings convex; the apex acute.* In the anterior wings, the branches of the apical vein run out above and below the apex; the secondary cell is indicated; the first branch of the median vein is *very remote* from the second; the second and third are united into a fork. In the posterior wings the costal cell is *rather broad*; the apical vein is unconnected with the following; the median vein is trifid.

This genus contains only one British species (another is, I believe, known on the continent); it is frequently beaten from hedges and bushes, when it may be observed flying sluggishly, or rather falling to the ground; for indeed it only appears to make use of its wings to break its fall. The larva is polyphagous, feeding under a web on the underside of the leaves of the oak, beech, pear, bramble, etc.

1. **Quercana**, Fab. S. E. 652. 39 (1775); Don.; Haw.; Step.—*Fagana*, W. V.; Hüb.; Schr.—*Faganella*, Treit.—*cancella*, Hüb. Alis anticis dilute griseo-rufis, costæ basi, macula quadrata costæ pone medium ciliisque dilute flavis. Exp. al. 9 lin.

Head and face pale rosy-grey. Palpi pale reddish-ochreous, internally paler. Antennæ pale rosy-grey. Anterior wings pale rosy-grey, somewhat suffused with rosy, with an obscure oblique dark striga before the middle, and two fuscous spots on the disc, one in the middle, the other beyond the middle, sometimes united to a fuscous blotch on the fold; the base of the costa, and a quadrate spot on the costa beyond the middle, are pale yellow; the hinder margin and apex of the costa rosy-fuscous; cilia pale yellow, at the anal angle pale rosy-grey. Posterior wings whitish, with a slight rosy-fuscous tint, with paler cilia.

An abundant species in July and August. The larva polyphagous in May and June.

Genus V. **EXÆRETIA.**

**EXÆRETIA**, Sta. Ent. Trans. v. 152 (1849).

Capilli depressi. Ocelli nulli. Antennæ (♂) *pubescente-ciliatis*. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales mediocres, reflexi, articulo secundo infra scopiformi, tertio tenui, lævi, acuto. Alæ oblongæ brevius ciliatæ, anteriores *costa leviter sinuata, ciliis sub apicem leviter retusis*, posteriores margine postico ante angulum analem rotundatum sinuato. Alæ anteriores: venæ apicalis furcatæ ramus inferior in apicem exit; infra eam rami quinque; venæ medianæ rami duo primi in furcam conjuncti; submedianæ a mediana distat, apice incrassato. Alæ posteriores: venæ subdorsales tres, tertia in basi plicæformis; vena mediana trifida; cellula costalis sensim coarctata; vena apicalis simplex.

Head smooth. Ocelli none. Antennæ (of the male) pubescent. Tongue of moderate length, scaled. Maxillary palpi very short. Labial palpi moderately long, reflexed; the second joint beneath resembling a brush; the third joint slender, smooth, pointed. Wings oblong, with short cilia; *the costa of the anterior wings slightly sinuated, and the cilia below the apex very slightly emarginate*; the hinder margin of the posterior wings sinuated before the rounded anal angle. In the anterior wings the lower branch of the furcate apical vein runs into the apex; below it are five veins from the discoidal cell; the two first branches of the median vein are united into a fork; the apical portion of the submedian, which is remote from the median vein, is thickened. In the posterior wings are three subdorsal veins; the third thin towards the base; the median vein is trifid; the costal cell is perceptibly narrowed, and the apical vein is simple.

Of this peculiar genus only one species is known, which till last year was very rare; it appears more frequent in the northern counties of England, but one specimen was taken in Norfolk by Mr. Wing. The species is thought to frequent the *Artemisia vulgaris*.

1. **Allisella**, Sta. Ent. Trans. v. 152. pl. 17. f. 1 (1849). Alis anticis plumbeo-griseis, stria obliqua costali pone medium rufo-grisca, in qua macula disci saturate fusca. Exp. al. 10 lin.

Head reddish-grey. Face leaden-grey. Palpi reddish-grey, internally leaden-grey. Antennæ dark fuscous. Anterior wings *leaden-grey*, with a reddish-grey blotch near the inner margin towards the base, a short reddish-grey oblique streak from the costa before the middle, terminating in a small dark fuscous spot, and an *oblique reddish-grey streak from the costa a little beyond the middle*, reaching nearly half across the wing; *in this streak on the disc is an oblique dark fuscous spot*; the apical portion of the wing is rather clouded with reddish-grey, and there are some reddish-grey spots along the apex of the costa;

cilia leaden-grey, with a slight reddish tinge. Posterior wings pale greyish-fuscous, with paler cilia.

Occurs in the north of England in July; taken also on the coast, in Norfolk and Kent.

## Genus VI. **DEPRESSARIA.**

DEPRESSARIA, Haw. L. B. 505 (1812); Curt.; Step.; Zell. *Hæmylis*, Dup. *Hæmylis* p., Treit.; Zett.

Capilli depressi. Ocelli nulli. Antennæ articulis confertis, vix denticulatis. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales mediocres, reflexi, articulo secundo *infra scopiformi*, tertio *tenui, lævi, acuto*. Abdomen *planum, squamis marginatum*. Alæ oblongæ mediocriter ciliatæ, posteriores *marginè postico ante angulum analem rotundatum plerumque sinuato*. Alæ anteriores: venæ apicalis furcatæ ramus inferior *ante apicem* exit; infra eam rami quinque; venæ medianæ rami duo primi in furcā conjuncti; submedianā a medianā distat, apice incrassato. Alæ posteriores: venæ subdorsales tres, tertia in basi plicæformis; vena medianā trifida; cellula costalis sensim coarctata, vena apicalis simplex.

Head smooth. Ocelli none. Antennæ with the joints compressed, hardly denticulate, not pubescent. Tongue of moderate length, scaled. Maxillary palpi very short. Labial palpi moderately long, reflexed; the second joint beneath *resembling a brush*; the third joint *slender, smooth, pointed*. Abdomen *flat, with projecting scales at the sides*. Wings oblong, with moderate cilia; the anterior not emarginate on the costa, slightly rounded at the apex; the posterior wings generally *with the hinder margin emarginate before the rounded anal angle*. In the anterior wings the lower branch of the furcate apical vein runs into the costa *before* the apex; below it are five veins from the discoidal cell; the two first branches of the median vein are united into a fork; the apical portion of the submedian, which is remote from the median vein, is thickened. In the posterior wings are three subdorsal veins, the third attenuated at the base; the median vein is trifid; the costal cell perceptibly narrowed; the apical vein is simple.

An extensive but very natural genus, of which we have no less than thirty-seven British species, and *many others* are known on the continent. The perfect insects of several species are extremely retired in their habits, and keep themselves so well concealed that they are rarely or never seen: some come out from their lurking-places after dusk, and, crawling up the stems of the plants on which they feed, may be seen by the aid of a lantern, but readily take alarm and drop again to the ground; a few, such as *applanata*, are less anxious for concealment, and may be met with plentifully

in the early spring, flitting about the leafless hedges. Most of the species appear at the end of summer, and, after having hibernated, are met with in March and April in rather wasted condition. There is a peculiarity in the perfect insects of this genus, that they have the power of sliding about when laid on their backs, shooting forwards much in the style of *Noctua Tragopogonis*. The larvæ are extremely active, and feed on a variety of substances, some feeding in rolled-up leaves of composite plants, some in the leaves and others in the umbels of the *Umbellifera*; many of the latter descend from the plant on the slightest agitation of it, and considerable caution is necessary in the attempts to collect them. The full-fed larvæ descend to the ground, and change to the pupa state among the fallen leaves; the larva of *Heracliana* frequently enters the stem of the *Heraclium Sphondylium*, undergoing its changes there.

The extreme similarity of many of the species renders the determination of them a matter of some difficulty, and unfortunately the genus hardly admits of a good subdivision; the best I have been able to accomplish is by the following table:—

- a*. Anterior wings dusted and spotted, or veined, but not with numerous short longitudinal streaks.
  - b*. Anterior wings whitish. Species 11.
  - b b*. Anterior wings pale greyish-ochreous. Sp. 6, 12, 19, 20, 24.
  - b b b*. Anterior wings ochreous. Species 1, 2, 3, 4, 5, 8, 9, 10.
  - b b b b*. Anterior wings reddish-ochreous. Species 7, 17, 18.
  - b b b b b*. Anterior wings reddish-fuscous. Species 21, 22, 23.
  - b b b b b b*. Anterior wings purplish-fuscous. Sp. 13, 14, 15, 16.
- a a*. Anterior wings with numerous short longitudinal streaks. Species 25–37.

1. **costosa**, Haw. L. B. 508 (1812); Step.; Sta.—*Spartiana*, Hüb.—*depunctella*, Hüb.; Treit.; Dup. Alis anticis acutiusculis, dilute ochreis, rufo-fusco nebulosis, punctis duobus disci ante medium nigris, nebula pone medium fere costam tangente saturate fusca, in ea puncto disci albo; ciliis rufo-fuscis, angulum analem versus griseis. Exp. al. 10 lin.

Head and face pale ochreous. Palpi pale ochreous; second joint beneath fuscous; terminal joint with a narrow ring before the apex, and the extreme apex fuscous. Antennæ fuscous. Anterior wings rather acute, pale ochreous, clouded with reddish-fuscous, with an oblique dark fuscous streak near the base of the inner margin, not reaching to the subcostal vein; on the disc before the middle are two black spots, of which the anterior and upper one is frequently obsolete; beyond the middle is a dark reddish-fuscous blotch, almost touching the costa, and in it on the disc is a white spot; the pale hinder fascia is

rather indistinct, and not acutely angulated; the veins posteriorly are more or less distinctly indicated by fuscous streaks; *cilia reddish-fuscous*, towards the anal angle grey. Posterior wings whitish-grey, a little darker posteriorly, with whitish cilia.

Common in July and August among broom and furze (*Ulex Europæus*), on which plants the larva feeds in June.

2. **litorella**, W. V. 137. 4 (1776); Schr.; Treit.; Dup.; Sta.—*Sparrmanniana*, Fab.; Step.—*flavella*, Hüb.—*flavosa*, Haw. Alis anticis *latiusculis* dilute ochreis, saturate ochreo-nebulosis, punctis duobus disci nigris, stria *saturate ochrea* obliqua in dorso prope basim incipiente, in *nebulam parvam* pone medium *fuscam* desinente. Exp. al. 10 lin.

Head and face pale ochreous. Palpi pale ochreous; second joint beneath pale fuscous. Antennæ dark fuscous. Anterior wings *rather broad*, pale ochreous, with some darker ochreous clouds; on the inner margin near the base is a small dark fuscous spot; on the disc are two black spots, one before, the other beyond the middle; beneath the latter is a *small fuscous blotch*, in which a *dark ochreous* streak from the inner margin near the base appears to terminate; beyond is a pale fuscous oblique streak, often very indistinct; hinder margin spotted with fuscous; cilia very pale ochreous. Posterior wings whitish-grey, with some dark spots towards the apex of the hinder margin; cilia whitish.

A common species, appearing in July and August; the larva feeds in rolled-up leaves of the knapweed (*Centaurea nigra*) in June.

3. **pallorella**, Zell. Isis, 1839, p. 195; Sta. Alis anticis *angustis* dilute ochreis, punctis duobus disci nigris, stria *lata fusca* prope dorsum ante medium incipiente, costam versus subcurvata, *pone* punctum secundum desinente, venis postice saturate fuscis. Exp. al. 10 lin.

Head and face pale ochreous. Palpi pale ochreous; second joint beneath pale fuscous. Antennæ dark fuscous. Anterior wings *rather narrow*, pale ochreous, with a black spot near the inner margin towards the base; on the disc are two black spots, one before, the other beyond the middle; a *broad fuscous* streak arises near the inner margin not far from the base, and, curving a little upwards, terminates *rather beyond* the second spot of the disc; all the veins are posteriorly indicated by dark fuscous scales; the hinder margin is spotted with black; cilia very pale ochreous. Posterior wings greyish-white, with a slight fuscous tinge; some spots towards the apex of the hinder margin rather darker; cilia whitish.

Taken in the autumn in several places on the coast; at Dover and the Isle of Wight.

4. **Umbellana**, Step. H. iv. 197 (1834).—*Ulicetella*, Sta. Alis

anticis dilute ochreis, punctis duobus disci nigris, *venis omnibus dorsoque saturate fuscis*. Exp. al. 10 lin.

Head and face pale ochreous. Palpi fuscous, internally pale ochreous; terminal joint pale ochreous, with the tip dark fuscous. Antennæ fuscous. Anterior wings pale ochreous, *with all the veins and the inner margin dark fuscous*; on the disc are two black spots, one before, the other, smaller, beyond the middle; hinder margin spotted with black; cilia pale greyish-ochreous. Posterior wings whitish-grey, a little darker posteriorly, with some dark fuscous spots at the apex of the hinder margin; cilia whitish.

Not uncommon among furze-bushes from August to October.

5. **assimilella**, Treit. E. S. ix. 1. 259 (1832); F. v. R.; Dup.; Zell.; Sta.—*irrorella*, Step.—*atomella*, Step.? Alis anticis dilute ochreis, fusco-nebulosis, *nebula dorsali prope basin saturate fusca, puncto disci ante medium nigro, nebula fusca in medio obsoletius plicam versus producta; ciliis dilute ochreis*. Exp. al. 9 lin.

Head pale ochreous. Face whitish. Palpi pale ochreous; second joint slightly fuscous beneath; terminal joint with a dark fuscous ring before the apex. Antennæ dark fuscous. Anterior wings pale ochreous, clouded with fuscous, with *a dark fuscous blotch on the inner margin* near the base, hardly reaching across the fold; *a black spot on the disc before the middle* is followed by a fuscous blotch, of which a paler continuation extends to the fold; hinder margin spotted with dark fuscous; *cilia pale greyish-ochreous*. Posterior wings whitish-grey, a little darker posteriorly, with the apex of the hinder margin spotted with dark fuscous; cilia whitish.

Common among broom in June and July; the larvæ feed between united twigs of broom in March and April.

6. **nanatella**, Sta. Ent. Trans. v. 154. pl. 17. f. 2 (1849). Alis anticis breviusculis, *albido-ochreis, fusco-irroratis*, postice fusco-suffusis, puncto disci ante medium nigro, nebula fusca in medio, costam fere tangente; *alis posticis griseo-fuscis*. Exp. al. 7 lin.

Head and face whitish-ochreous. Palpi very pale ochreous; terminal joint spotted with fuscous below the apex. Antennæ pale fuscous. Anterior wings rather short, *whitish-ochreous, irrorated with fuscous*; towards the apex much suffused with fuscous; on the disc, a little before the middle, is a black spot; beyond which, and almost touching the costa, is a fuscous blotch; the hinder margin and apex of the costa are spotted with pale ochreous; cilia pale greyish-ochreous. Posterior wings *greyish-fuscous*, with paler cilia.

Not common; has occurred at Charlton, Mickleham, and near Dover, in August.

7. **atomella**, W. V. 137. 6 (1776); Hüb.; Sta.—*atomosa*, Haw.—*pulverella*, Treit.; F. v. R.—*respersella*, Treit.—*intermediella*, Sta. Alis anticis ochreis rufo-griseo fere suffusis, *stria obliqua dorsali prope*

basim saturate fusca, *punctis duobus disci ante medium nigris, punctis duobus disci pone medium albis obsoletis*, sub nebula parva fusca. Exp. al.  $9\frac{1}{2}$  lin.

Head greyish-ochreous. Face pale ochreous. Palpi reddish-grey, internally pale ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the extreme apex dark fuscous. Antennæ pale fuscous. Anterior wings ochreous, somewhat suffused with reddish-grey, *with an oblique dark fuscous streak near the base of the inner margin*, reaching only half across the wing; *on the disc before the middle are two black spots* (the anterior nearer to the costa), followed by a few white scales, *and in a line with the lower one are two faint white spots*, above which is a small fuscous blotch; the pale hinder fascia is not sharply angulated and very indistinct; along the hinder margin are some dark fuscous spots; cilia greyish-ochreous. Posterior wings pale grey, with paler cilia.

Not common; appears in August and September. The larva feeds on broom and *Genista tinctoria* in May and June.

8. **arenella**, W. V. 137. 3 (1776); Treit.; F. v. R.; Dup.; Sta.—*gilvella*, Hüb.—*gilvosa*, Haw.—var. *immaculana*, Step. Alis anticis dilute ochreis, *saturate fusco maculatis et nebulosis*, stria obliqua dorsali prope basim saturate fusca, *punctis duobus disci ante medium nigris*, nebula in medio, punctoque posteriore saturate fuscis. Exp. al. 10 lin.

Head ochreous. Face pale ochreous. Palpi ochreous, internally paler; terminal joint with a ring at the base, a ring before the apex, and the extreme apex dark fuscous. Antennæ dark fuscous. Anterior wings pale ochreous, *spotted and clouded with dark fuscous*; on the inner margin near the base is an oblique dark fuscous streak, reaching nearly to the subcostal vein; on the disc before the middle are two black spots (the anterior nearer to the costa), followed by a dark fuscous blotch, beyond which and further from the costa is a dark fuscous spot; the indications of a pale hinder fascia are very indistinct; the costa is spotted with dark fuscous, and there are some black spots along the hinder margin; cilia pale ochreous. Posterior wings whitish-grey, with some dark fuscous spots towards the apex of the hinder margin; cilia yellowish-white.

Common, appearing in August; hibernated specimens are not unfrequent in April. The larva feeds on *Centaurea nigra* in June and July.

9. **propinquella**, Treit. F. S. x. 3. 184 (1835); F. v. R.; Sta.—*gilvosa* var.  $\beta$ . Haw. Alis anticis breviusculis, dilute ochreis, *saturate ochreo-marmoratis*, stria obliqua dorsali prope basim saturate fusca, *punctis duobus disci ante medium nigris*, nebula in medio *saturate fusca nigrae costam fere tangente*. Exp. al.  $8\frac{1}{2}$  lin.

Head and face pale greyish-ochreous. Palpi pale fuscous, internally pale ochreous; terminal joint pale ochreous, with a fuscous ring at the base and a dark fuscous ring before the apex. Antennæ pale fus-

cous. Anterior wings rather short, pale ochreous, *marbled with darker ochreous*; near the base of the inner margin is an oblique dark fuscous streak reaching nearly to the subcostal vein; on the disc before the middle are two small black spots (the anterior nearer to the costa), beyond is a *dark fuscous, almost black blotch* reaching nearly to the costa; the indications of a pale hinder fascia are extremely indistinct; the costa and hinder margin are spotted with dark fuscous; cilia pale greyish-ochreous. Posterior wings pale grey, with pale yellowish-grey cilia.

Not uncommon; appearing in September and October. The larva feeds on the underside of the leaves of thistles (*Cirsium lanceolatum*, etc.), making a gallery of silken web, in July and August.

10. **subpropinquella**, Sta. Ent. Trans. v. 156. pl. 17. f. 3 (1849). —*Heraclietta*, Dup.? Alis anticis longiusculis *brunneo-ochreis*, stria obliqua dorsali prope basim *fere obsoleta* fusca, punctis duobus disci ante medium nigris, nebula *fusca* in medio, puncto fusco interdum obsoleto pone medium. Exp. al. 10 lin.

Head greyish-ochreous. Face pale greyish-ochreous. Palpi pale fuscous, internally pale ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the extreme apex dark fuscous. Antennæ fuscous. Anterior wings *brownish-ochreous*, with an *almost obsolete* fuscous oblique streak on the inner margin near the base; on the disc before the middle are two black spots; the anterior nearer the costa and beyond is a *fuscous (rarely dark fuscous) blotch*, beyond which and further from the costa is a fuscous spot, sometimes obsolete; the hinder margin is spotted with dark fuscous; cilia greyish-ochreous. Posterior wings pale fuscous, towards the base paler; cilia pale yellowish-grey.

Common near Folkestone, in September; also occurs at Epping; and last summer Mr. Shield, of Dublin, bred a specimen from a larva which fed (like that of *propinquella*) on the underside of the leaves of thistles in June, producing the perfect insect in August.

11. **Alstroemeriana**, Clerck, l. pl. x. f. 1 (1759); Linn. (S. N.); Step.—*Alstroemiana*, Linn. (F. S.); Fab.—*Alstroemeri*, Haw.—*Alstroemerella*, Treit.; Dup.—*monilella*, W. V.—*puella*, Hüb.—*albidella*, Evers. Alis anticis *albis*, dilute *griseo-ochreo irroratis*, macula dorsali prope basim dilute fusca, punctis duobus parvis disci ante medium nigris, nebula in medio saturate fusca costam tangente, in *maculam saturate rufam terminata*. Exp. al. 8 lin.

Head and face white. Palpi pale grey, internally white; terminal joint with a ring at the base, a ring before the apex, and the extreme apex fuscous. Antennæ dark fuscous. Anterior wings *white, irrorated with pale greyish-ochreous*; on the inner margin near the base is an oblique pale fuscous blotch reaching nearly to the subcostal vein; on the disc before the middle are two small black spots (of which the anterior



is nearer to the costa); beyond is a dark fuscous blotch touching the costa, and *terminating in a dark red spot*; the indications of a pale hinder fascia are extremely slight; along the costa are some short dark fuscous streaks, and at the apex of the hinder margin are a few black spots; cilia pale greyish-ochreous. Posterior wings pale grey, towards the apex rather darker, with whitish-grey cilia.

Not a common species; appears in August, and hibernated specimens sometimes occur in April. Mr. Harding discovered the larva last summer, feeding in the umbels of hemlock (*Conium maculatum*).

12. **ciniflonella**, Lienig et Zell. Isis, 1846. p. 280; Sta. Alis anticis *rufo-griseis, albido-irroratis*, basi costaque usque ad medium albis, stria dorsali prope basin saturate fusca, punctis duobus disci *sæpe connexis* nigris, posteriore et inferiore *elongato, strigulis duabus abbreviatis* disci pone medium nigris, *sæpe in maculam connexis*. Exp. al.  $9\frac{1}{2}$  lin.

Head and face white, mixed with reddish-grey. Palpi fuscous, internally whitish; terminal joint whitish, with a fuscous ring at the base, and a broad black one before the apex. Antennæ fuscous. Anterior wings *reddish-grey, irrorated with whitish*, with the base and the costa to near the middle white; on the inner margin near the base is a dark fuscous streak reaching to the fold; on the disc before the middle are two black spots *frequently connected*, the lower and posterior one is *rather elongated*; on the disc beyond the middle are *two short black streaks, frequently united into a blotch*; at the extremity of the lower one is a white spot; the whitish hinder fascia is not sharply angulated; the costa is spotted with fuscous, the hinder margin with dark fuscous; cilia reddish-grey. Posterior wings grey, with paler cilia.

This elegant species has been met with by Mr. Weaver, at Rannoch, on the trunks of fir-trees.

13. **purpurea**, Haw. L. B. 511 (1812); Step.—*vaccinella*, Hüb.; Treit.; Dup. Alis anticis *rufo-fuscis*, basi abrupte, *maculisque costalibus luteo-griseis*, punctis duobus disci ante medium nigris, *nebula magna in medio saturate fusca* costam tangente. Exp. al. 8 lin.

Head yellowish-grey, mixed with dark fuscous. Face pale yellowish-grey. Palpi greyish-fuscous, internally whitish; terminal joint whitish, with two rings and *the extreme tip* dark fuscous. Antennæ dark fuscous. Anterior wings *reddish-fuscous, irrorated with pale yellowish-grey along the costa*; the base is almost entirely pale yellowish-grey, abruptly terminated by an oblique streak from the inner margin extending to the subcostal vein; on the disc before the middle are two black spots (the anterior nearer the costa), they are followed by some white scales; beyond them is a *large dark fuscous blotch* touching the costa, after which is a small white spot on the disc surrounded with dark fuscous; the pale hinder fascia is very indistinct, and rather acutely angulated; cilia reddish-fuscous. Posterior wings pale fuscous, whitish towards the base, with paler cilia.

Not rare, but nowhere abundant; widely distributed, appearing in August; hibernated specimens not uncommon in April.

14. **capreolella**, Zell. Isis, 1839. p. 196.—*caprella*, Sta.—*Zephyrella*, Hüb.? Alis anticis *griseo-ochreis*, *dorsum versus rufo-suffusis*, basi dilutiore, punctis duobus disci ante medium nigris, *duobus longitudinaliter positis pone medium albis*. Exp. al. 7 lin.

Head pale greyish-ochreous, with some fuscous scales. Face pale greyish-ochreous. Palpi pale fuscous, internally pale ochreous; terminal joint pale ochreous, with a fuscous ring at the base and another before the apex. Antennæ fuscous. Anterior wings *greyish-ochreous, along the inner margin with a slight reddish tint*; on the inner margin near the pale greyish-ochreous base is an oblique fuscous streak reaching to the subcostal vein; on the disc before the middle are two black spots (of which the anterior is nearer the costa), they are followed by some white scales, and *beyond in a line with the lower one are two whitish spots* surrounded by some dark fuscous scales; the pale hinder fascia is very indistinct and not acutely angulated; the hinder margin spotted with dark fuscous; cilia greyish-fuscous. Posterior wings greyish-fuscous, towards the base paler, with greyish-white cilia.

Few specimens of this have hitherto been taken; most of those have been beaten out of old thatch in September.

15. **Hypericella**, Hüb. Tin. 441 (1816); Treit.; Dup.; Sta.—*liturella*, Hüb.? Step.—*liturosa*, Haw.? Alis anticis *rufo-fuscis*, *cæruleo-nigro* (præcipue costam versus) *suffusis* (basi sæpe lutea), *stria curvata disci ante medium nigra*, *maculis duabus costæ dilute luteis*; *thorace, capillis, palpisque flavidis*. Exp. al. 9 lin.

Head and face pale yellow, intermixed with brownish. Palpi pale yellow, with a few fuscous scales; the terminal joint with a black ring immediately before the apex. Antennæ dark fuscous. Anterior wings red, with a slight fuscous tinge, *suffused with bluish-black*, especially towards the costa; the extreme base and the basal portion of the costa is frequently pale yellow; on the disc before the middle is a curved black streak, followed by a few pale yellow scales; *above it is a pale yellow blotch on the costa, and beyond the middle of the costa is another pale yellow blotch*, which forms, as it were, the commencement of a pale angulated hinder fascia; the hinder margin dark fuscous; the apex of the costa dark fuscous, spotted with pale yellow; cilia dark greyish-fuscous. Posterior wings grey, a little paler towards the base, with paler cilia.

The perfect insect is rarely seen. The larva is common, feeding in the tops of *Hypericum perforatum*, in May and June.

16. **conterminella**, Zell. Isis, 1839. p. 196; Sta.—*curvipunctosa*, Haw.? Step.? Alis anticis *rufo-fuscis*, *dilute luteo-griseo irroratis* (basi sæpe dilute luteo-grisea), punctis duobus disci ante medium in striam curvatam connexis, squamis dilute luteo-griseis sequentibus, puncto

disci pone medium dilute luteo-griseo, nigro-cincto; *thorace, capillis, palpisque interdum dilute luteo-griseis.* Exp. al. 9 lin.

*Head and face pale yellowish-grey*, mixed with dark fuscous. Palpi reddish-fuscous, internally pale yellowish; terminal joint with a dark fuscous ring before the pale yellowish apex. Antennæ fuscous. Anterior wings *reddish-fuscous, irrorated with pale yellowish-grey*; the pale yellowish-grey base contains a small dark fuscous spot on the inner margin; on the disc before the middle are two black spots united into a curved streak, they are followed by some pale yellowish-grey scales, and beyond the middle on the disc is a yellowish-grey spot encircled with black; the pale hinder fascia is *rather obtusely* angulated and somewhat indistinct; the hinder margin and apex of the costa spotted with dark fuscous; cilia greyish-fuscous. Posterior wings whitish-grey, darker towards the apex, with paler cilia.

Occurs occasionally among willows in July and August. The larva plentiful in the terminal shoots of willows and osiers in May and June.

17. **Angelicella**, Hüb. Tin. 337 (1816); Treit.; Zell.; Sta.—*rubidella*, Dup. Alis anticis *dilute luteis, rufo-suffusis*, puncto disci ante medium, puncto posteriore plicæ nigris, *nebula nigra disci pone medium*; palporum articulo tertio *immaculato* flavido. Exp. al.  $8\frac{1}{2}$  lin.

Head and face pale yellow. Palpi pale yellow, mixed with fuscous; *terminal joint entirely pale yellow.* Antennæ fuscous. Anterior wings *pale yellow, suffused with reddish*, with a dark fuscous spot at the base of the costa, a reddish-fuscous streak from the inner margin reaching nearly to the costa, bordering the pale yellow base of the wing; on the disc before the middle is a black spot, and a little posterior is another on the fold; *beyond the middle is a black blotch on the disc* (which sometimes appears as though placed in an oblique cloudy fascia); the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale reddish-yellow. Posterior wings whitish-grey, with paler cilia.

Not uncommon in the fens of Cambridgeshire, and near Bristol, among *Angelica sylvestris*; the perfect insect appears in July, the larva feeding on the *Angelica* in June (I am credibly informed that the larva feeds also on willow).

18. **Carduella**, Hüb. Tin. 439 (1816); Step.—*rubidella*, Hüb.? Alis anticis *dilute rufo-ochreis, fusco-irroratis*, punctis duobus disci ante medium nigris, duobus aliis pone medium minus approximatis (anterior fere obsoleto). Exp. al.  $7\frac{1}{2}$  lin.

Head pale reddish-ochreous. Face pale ochreous. Palpi pale reddish-ochreous, internally pale ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the extreme apex fuscous. Antennæ fuscous. Anterior wings *pale reddish-ochreous, with numerous scattered fuscous scales*; from the inner margin near the base is an oblique dark fuscous streak reaching only half across the wing;

on the disc before the middle are two black spots (of which the anterior is nearer the costa); beyond the middle are two more remote, of which the anterior is rather obsolete; a pale hinder fascia is hardly indicated at all; the hinder margin spotted with dark fuscous; cilia pale greyish-ochreous. Posterior wings whitish-grey, with paler cilia.

A scarce species, hitherto only taken singly in various localities in the south, in July and August.

19. **ocellana**, Fab. S. E. 652. 40 (1775); Step.—*characterella*, W. V.; Treit.; Dup.; Sta.—*signella*, Hüb.—*signosa*, Haw. Alis anticis dilutissime grisco-ochreis, squamis sparsis fuscis, punctis duobus disci ante medium saturate fuscis, *macula fusca in medio infra coccineo-squamato*, puncto posteriore albo coccineo-cincto. Exp. al. 10–11 lin.

Head and face pale greyish-ochreous. Palpi pale greyish-ochreous, internally pale ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the apex itself fuscous. Antennæ fuscous. Anterior wings very pale greyish-ochreous, with numerous fuscous scales, with a reddish-fuscous cloud on the inner margin near the base, extending rather obliquely towards the subcostal vein; on the disc before the middle are two dark fuscous spots (of which the anterior is nearer the costa, and the posterior is rather elongated); *in a line with the upper spot is a fuscous blotch, below which are some crimson scales*, which also encircle a white spot beyond, and nearly in a line with the lower of the first two spots; the pale angulated hinder fascia is rather indistinct; the hinder margin and costa are spotted with dark fuscous; cilia pale greyish-ochreous, with a slight reddish tinge. Posterior wings whitish, with paler cilia.

Not unfrequent among sallows in the spring. The perfect insect appears in August, but is then rarely met with. The larva feeds on sallows in July.

20. **Yeatiana**, Fab. S. I. ii. 286. 60 (1781); Sta.—*Yeatsii*, Haw. *Yeatsana*, Step.—*putridella*, Haw.; Step.; W. V.? Hüb.?—*Boicella*, Freyer.—*albidana*, Don.?—*adpersella*, Treit.? Alis anticis dilute griseo-ochreis, punctis duobus disci ante medium nigris, *macula fusca in medio costam versus, puncto posteriore albo fusco-cincto (venis omnibus interdum fuscescentibus)*. Exp. al. 9½ lin.

Head pale greyish-ochreous. Face pale ochreous. Palpi pale ochreous; second joint externally pale fuscous; terminal joint with a ring at the base, a ring before the apex, and the apex itself fuscous. Antennæ fuscous. Anterior wings *pale greyish-ochreous*, with a dark fuscous streak from the inner margin near the base, extending obliquely nearly to the subcostal vein; on the disc before the middle are two black spots (the anterior nearer the costa); they are closely followed by a fuscous blotch, beyond which and nearly in a line with the lower of the first two spots is a white spot surrounded by fuscous; hinder margin spotted with dark fuscous (*in some specimens all the veins are*

indicated by fuscous streaks); cilia pale greyish-ochreous. Posterior wings pale grey, towards the base whitish, with paler cilia.

Taken in many places near London in the autumn, by beating thatch.

21. **applana**, Fab. G. I. 294 (1776); Haw.; Step.; Sta.—*applanella*, Fab. (E. S. Sup.); F. v. R.—*Cerefolii*, Retz.—*Cicutella*, Hüb.; Treit.; Dup. Alis anticis *rufo-fuscis*, *fusco-nebulosis*, punctis duobus disci ante medium nigris, *squamis sequentibus albis*, punctis duobus in eadem linea cum puncto inferiore albis, saturate fusco-cinctis; ciliis alarum posticarum albedo-griseis, *apicibus non rufo-tinctis*. Exp. al. 10 lin.

Head and face greyish-ochreous, mixed with fuscous. Palpi fuscous, internally pale greyish-ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the extreme apex dark fuscous. Antennæ fuscous, more than two-thirds the length of the anterior wings. Anterior wings *reddish-fuscous*, *clouded with fuscous*; the blotch near the base of the inner margin is sharply defined towards the pale greyish-ochreous base of the wing, but less sharply defined towards the subcostal vein, where it terminates; on the disc before the middle are two black spots (of which the anterior is nearer the costa); *they are generally followed by a few white scales*, and beyond, in a line with the lower one, are two white spots, surrounded by some dark fuscous scales; the pale hinder fascia is indistinct and obtusely angulated; the costa and hinder margin are spotted with dark fuscous; cilia reddish-fuscous. Posterior wings pale grey, paler towards the base; cilia whitish-grey, *with the tips not rufous*.

A most abundant species, flitting merrily along the leafless hedges in the early spring. The perfect insect appears in July, and during the autumn is frequently met with by those beating thatch for the rarer species of the genus, but is rarely seen on the wing of its own accord. The larva feeds in June on the leaves of *Anthriscus sylvestris*, *Cherophyllum temulentum*, and several other *Umbellifere*, turning over a small portion of the leaf; it is extremely active.

22. **ciliella**, Sta. Ent. Trans. v. 161. pl. 17. f. 7 (1849). Alis anticis *dilute rufo-brunneis*, punctis duobus disci ante medium nigris, *squamis sequentibus albis*, punctis duobus in eadem linea cum puncto inferiore albis, saturate fusco-cinctis; ciliis alarum posticarum albedo-griseis, *apicibus rufo-tinctis*. Exp. al. 11 lin.

Head and face reddish-brown. Palpi reddish-brown, internally pale ochreous; terminal joint dirty ochreous, with a ring at the base, a ring before the apex, and the apex itself dark fuscous. Antennæ fuscous. Anterior wings *pale reddish-brown*, with a darker blotch on the inner margin near the base, reaching to the subcostal vein (the space between it and the base being frequently paler than the rest of the wing); on the disc before the middle are two black spots (the anterior nearer the

costa); *they are followed by some white scales*, and beyond, in a line with the lower one, are two white spots surrounded by some dark fuscous scales; the pale hinder fascia is indistinct and obtusely angulated; the costa and hinder margin are spotted with fuscous; cilia reddish-fuscous. Posterior wings pale greyish-fuscous, paler towards the base; the cilia paler, *with the tips tinged with rufous*.

Not common; sometimes obtained by beating old thatch in the autumn. The larva feeds (according to Mr. Allen Hill) in July, on the leaves and umbels of *Angelica sylvestris*.

23. **granulosella**, n. sp. Alis anticis *griseo-ochreis, fusco-nebulosis*, punctis duobus disci ante medium nigris, *inferiore paululum elongato*, puncto pone medium subobsoleto albo. Exp. al. 8 lin.

Head greyish-ochreous. Face pale ochreous. Palpi pale fuscous, internally pale ochreous; terminal joint pale ochreous, with a ring at the base, a ring before the apex, and the extreme apex dark fuscous. Antennæ fuscous, little more than half the length of the anterior wings. Anterior wings *greyish-ochreous, clouded with fuscous*, with a dark fuscous blotch on the inner margin near the base, sharply defined towards the base, less so at the subcostal vein, where it terminates; on the disc before the middle are two black spots obliquely placed, *the lower and posterior one is rather elongated*; in a line with it, beyond the middle, is an almost obsolete white spot; indications of a pale hinder fascia are not perceptible; costa spotted with dark fuscous, hinder margin with a few fuscous spots; cilia pale greyish-ochreous. Posterior wings pale grey, with whitish-grey cilia.

Taken at Deal, in September.

24. **rotundella**, Dougl. Zool. 1270. f. 8 (1846).—*peloritanela*, Zell. Alis anticis angustulis dilute griseo-ochreis, *puncto prope basin dorsum versus, puncto disci ante medium, punctoque (dorso propiore) disci pone medium saturate fuscis*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face pale greyish-ochreous. Palpi dirty ochreous, internally whitish; terminal joint pale ochreous, with a ring at the base, and another before the apex, pale fuscous. Antennæ pale fuscous. Anterior wings rather narrow, pale greyish-ochreous, with a *spot* towards the inner margin near the base, *a spot* on the disc before the middle, and another (rather nearer the inner margin) beyond the middle dark fuscous; at the apex of the hinder margin are a few dark fuscous spots; cilia pale greyish-ochreous. Posterior wings pale grey, towards the base whitish, with paler cilia.

Taken in September at Mickleham, Sanderstead, and near Folkstone; also near Dover, and in the Isle of Wight. Mr. Harding has bred a specimen (I believe) of this species, from a larva feeding on the flowers of *Echium vulgare*.

25. **depressella**, Hüb. Tin. 407 (1816); Dup.—*depressana*, Zell.; Sta.; Fab.?—*Bluntii*, Curt.; Step.—*collarella*, Zett. Alis anticis *fuscis*—

*rufis, dorsum versus saturatioribus, squamis sparsis dilute luteis, macula dorsali pone medium, fasciaeque postica angulata (infra plicam obsoleta costam versus vix indicata) dilute luteis.* Exp. al. 7 lin.

Head and face *pale yellow*. Palpi dirty yellow, internally whitish; terminal joint pale yellow, with a ring at the base and another before the apex, fuscous. Antennæ reddish-fuscous. Anterior wings *reddish-fuscous*, darker towards the inner margin, *with some scattered pale yellow scales, and beyond the middle of the inner margin is a large pale yellowish spot*, followed by a pale yellowish angulated fascia, of which that portion only from the middle of the disc to the fold is distinct (of the costal half especially only a few scales are present); cilia pale reddish-grey. Posterior wings pale fuscous, with paler cilia.

Few British specimens have yet been taken. Mr. Blunt met with it at Southchurch, Essex, in July, and Mr. Douglas took it at Folkestone in October. The larva feeds on the seeds of the carrot and parsnep in July and August.

26. **Pimpinellæ**, Zell. Isis, 1839. p. 196; Sta. — *Pimpinella*, Dup. — *pulverella*, Evers. — *characterosa*, Haw.? Step.? Alis anticis angustulis fuscescentibus, costam versus rufescentibus, squamis sparsis albidis, striolis numerosis disci saturate fuscis, quarum una ante, altera pone medium conspicuæ. Exp. al. 8–8½ lin.

Head and face reddish-fuscous. Palpi reddish-fuscous, internally pale ochreous; terminal joint reddish or pale fuscous, with a ring at the base and another before the pale ochreous apex, dark fuscous. Antennæ dark fuscous. Anterior wings rather narrow, *rather pale fuscous, towards the costa reddish*, with several scattered white scales; towards the inner margin near the base is a dark fuscous dash; on the disc are numerous short dark fuscous streaks, *of which one before and one beyond the middle are conspicuous*; the pale hinder fascia is very indistinct and rather sharply angulated; the hinder margin and apex of the costa are spotted with dark fuscous; cilia reddish-fuscous. Posterior wings greyish-fuscous, towards the base whitish, with pale greyish-fuscous cilia.

Not a common species; taken near Stoat's Nest by Mr. Bedell, by beating old thatch, in September. The larva feeds in July and August on *Pimpinella saxifraga*.

27. **albipunctella**, Hüb. Tin. 149 (1801); Treit.; Step.; Dup.; Zell.; Sta. — *albipuncta*, Haw. Alis anticis fusco-rufis, saturatius fusconebulosis, stria obliqua abbreviata disci ante medium saturate fusca, puncto disci pone medium albo, fascia postica dilutiore angulata, inter nebulas fuscas posita. Exp. al. 8½ lin.

Head and face dark reddish-fuscous. Palpi dark reddish-fuscous, internally whitish; terminal joint entirely dark fuscous, except the pale ochreous apex. Anterior wings *reddish-fuscous, clouded with dark fuscous*, especially towards the base (whereby the ordinary dark spot

on the costa, and larger dark spot towards the inner margin near the base, are almost lost in the dark ground-colour); *on the disc before the middle is a short oblique dark fuscous streak, and beyond the middle is a white spot on the disc*, closely followed by the pale, not acutely angulated fascia, which is placed between two fuscous clouds; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-fuscous. Posterior wings pale grey, towards the apex inclining to fuscous, with paler cilia.

Not a scarce species; formerly I used to take it, at sugar, in July and August.

28. **emeritella** (v. Heyd.), Sta. Ent. Trans. v. 167 (1849). *Alis anticis fusco-rufis, basin versus saturationibus, squamis sparsis albidis, puncto elongato ante, puncto rotundo disci pone medium albidis*, spatio interjecto saturate fusco, fascia postica pallida acute angulata, infra pliam valde obsoleta; *thorace ac capite dilute luteis*. Exp. al. 11 lin.

*Head and face pale yellow*, with a slight reddish tinge. Palpi reddish-fuscous; internally and the tip of the terminal joint pale yellowish. Antennæ dark fuscous. Anterior wings *reddish-fuscous*, towards the base darker (whereby the dark spot at the base of the costa and the dark dash towards the inner margin near the base are almost obliterated), with numerous whitish scales; *on the disc before the middle is an elongated whitish spot, and beyond the middle is a round whitish spot*, the space between them being dark fuscous; the pale hinder fascia formed of whitish scales, begins on the costa rather before the middle, is rather sharply angulated and becomes very indistinct below the fold; cilia pale reddish-grey. Posterior wings whitish-grey, with paler cilia, with a slight reddish tint.

A specimen of this conspicuous species, unique as British, is in Mr. Shepherd's collection. The perfect insect appears in August. The larva feeding on the tansy (*Tanacetum vulgare*) in July.

29. **pulcherrimella**, Sta. Ent. Trans. v. 164. pl. 17. f. 8 (1849). *Alis anticis fusco-rufis, squamis numerosis albidis, striolis multis disci saturate fuscis, quarum una obliqua disci ante medium cum squamis sequentibus albidis conspicua, puncto albido pone striam alteram pone medium, fascia postica pallida acute angulata; thorace ac capite dilute rufogriseis*. Exp. al.  $8\frac{1}{2}$  lin.

*Head and face pale reddish-grey*. Palpi reddish-fuscous, internally whitish; terminal joint fuscous, with a ring at the base and another before the pale ochreous apex, dark fuscous. Antennæ dark fuscous. Anterior wings *reddish-fuscous, with numerous whitish scales*; a small spot at the base of the costa and a dash towards the inner margin near the base dark fuscous; *on the disc are several short dark fuscous streaks, of which an oblique one before the middle, followed by some whitish scales, is conspicuous; beyond a fuscous streak on the disc beyond the middle is a small whitish spot*; the pale hinder fascia is



whitish and rather acutely angulated; the hinder margin and apex of the costa are spotted with dark fuscous; cilia reddish-grey. Posterior wings grey, paler towards the base; cilia pale grey, with a slight reddish tinge.

Occurs sparingly at Sanderstead and Mickleham in July.

30. **Douglasella**, Sta. Ent. Trans. v. 165 (1849). *Alis anticis griseo-fuscis, squamis sparsis albidis, striolis numerosis saturate fuscis, quarum una obliqua disci ante medium magis conspicua, squamis albis sequentibus, punctulo albedo pone striam saturate fuscam, disci pone medium, fascia postica albida obtuse angulata, ad costam in maculam saturate fuscam exeunte; thorace ac capite albis.* Exp. al.  $8\frac{1}{2}$  lin.

*Head and face white.* Palpi fuscous, internally pale ochreous; terminal joint fuscous, with a dark fuscous ring at the base and another before the pale ochreous apex. Antennæ dark fuscous. Anterior wings greyish-fuscous, with scattered whitish scales, with a small dark fuscous spot at the base of the costa, and a dark fuscous dash towards the inner margin near the base; on the disc are numerous short dark fuscous streaks, of which an oblique one before the middle is conspicuous, being followed by some whitish scales, and beyond another dark fuscous streak, on the disc beyond the middle, is a small whitish spot; the whitish hinder fascia is almost obtusely angulated, and terminates in a dark fuscous blotch on the costa; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-fuscous. Posterior wings grey, towards the apex somewhat fuscous, with paler cilia.

A scarce species, appearing in July and August; it has been taken at Mickleham, Folkstone, Dover, and the Isle of Wight.

31. **Weirella**, Sta. Ent. Trans. v. 165. pl. 17. f. 5 (1849).—*apiosa*, Haw. ? *Alis anticis fusco-rufis, saturatius fusco-nebulosis, squamis sparsis albidis, stria ante, puncto pone disci medium, squamis albidis notato saturate fuscis, fascia postica acute angulata obsoleta; alis posticis albidis, apicem versus fuscosecentibus.* Exp. al.  $9\frac{1}{2}$  lin.

*Head and face greyish-fuscous.* Palpi dark reddish-fuscous, internally pale ochreous; terminal joint paler, with a dark fuscous ring before the pale ochreous apex. Antennæ dark fuscous. Anterior wings reddish-fuscous, clouded with darker fuscous, and with scattered whitish scales; on the disc before the middle is a dark fuscous streak, followed beyond the middle by a dark fuscous spot, in which are some whitish scales; the hinder fascia is indistinct and hardly acutely angulated; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale fuscous, varied with darker fuscous. Posterior wings whitish at the base, towards the apex pale fuscous, with paler cilia.

The perfect insect appears in July, but is hardly ever seen; a few specimens have been obtained by beating thatch in the autumn. The larva (which I have found abundantly) feeds on *An-*

*thriscus sylvestris* in May and June, curling down a piece of the leaf; it closely resembles the larva of *D. applanata*.

32. **Chærophylli**, Zell. Isis, 1839. p. 196; Sta.—*Heracleana*, Fab. (L. S. iii. 2).—*badia*, Haw.? Alis anticis *griseo-fuscis*, *macula oblonga costæ basali rufo-fusca*, striolis numerosis nigris, squamis albidis intermixtis, fascia postica pallida acute angulata. Exp. al.  $9\frac{1}{2}$  lin.

Head and face dark greyish-fuscous. Palpi dark fuscous; the second joint internally and at the tip pale ochreous; terminal joint dark fuscous, with the tip pale ochreous. Antennæ dark fuscous. Anterior wings *greyish-fuscous*, with the extreme base of the costa and an oblique dash from the base to the inner margin dark fuscous; *towards the base of the costa is a large reddish-fuscous blotch*; along the disc are numerous short black streaks interspersed with whitish scales, and beyond the middle is a pale acutely angulated fascia, of which the costal arm reaches nearly to the middle of the wing; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale fuscous. Posterior wings pale greyish-fuscous, with paler cilia.

Not an uncommon species, appearing in August. The larva, which is extremely lively, feeds in July, in the umbels of *Cherophyllum temulentum*, devouring indifferently the flowers or seeds.

33. **ultimella**, Sta. Ent. Trans. v. 166. pl. 17. f. 6 (1849). Alis anticis *griseo-fuscis*, *dilute rufo-tinctis*, striolis numerosis saturate fuscis, puncto elongato ante, puncto pone disci medium, saturate fuscis, squamis nonnullis albidis interjectis, fascia postica pallida acute angulata, fere obsoleta. Exp. al. 9 lin.

Head and face greyish-ochreous. Palpi fuscous, internally pale ochreous; the terminal joint with the base and a ring before the pale ochreous apex, dark fuscous. Antennæ fuscous. Anterior wings *greyish-fuscous*, *with a reddish tinge*, with numerous longitudinal dark fuscous streaks; at the base of the costa is a dark fuscous spot, and another larger towards the inner margin near the base; on the disc before the middle is an elongated dark spot, and a shorter dark spot follows it beyond the middle, between these spots are some whitish scales; the pale hinder fascia is acutely angulated, but rather indistinct; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-fuscous. Posterior wings pale whitish-grey, posteriorly inclining to fuscous, with paler cilia.

Appears in September, when the species may sometimes be met with by beating old thatch; occurs at Lewes and Folkstone.

34. **nervosa**, Haw. L. B. 506 (1812); Step.; Sta.—*Daucella*, W. V.? Treit.? Zell.?—*apiella*, Hüb.?—*apicella*, Step.? Alis anticis *griseo-fuscis*, *dilute rufescente-tinctis*, striis numerosis saturate fuscis, punctis duobus disci, altero ante, altero post medium saturate fuscis *albido-cinctis*, fascia postica pallida *valde* angulata, *apice suo ad alæ apicem accedente*. Exp. al. 10–11 lin.

Head and face greyish-fuscos. Palpi dark fuscous, internally pale greyish-ochreous; terminal joint rather paler, with the base and a ring before the pale ochreous apex, dark fuscous. Antennæ fuscous. Anterior wings *greyish-fuscous, with a very slight reddish tinge*, with numerous longitudinal fuscous streaks; the base of the costa and a small spot near the inner margin, towards the base, are dark fuscous; on the disc are two dark fuscous spots (one before, the other beyond the middle), surrounded by some whitish scales; the pale hinder fascia is *extremely angulated*, and *its apex approximates towards the apex of the wing*; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-fuscous. Posterior wings pale grey, with paler cilia.

Many specimens have been obtained in various parts of the country in September, by beating old thatch. The larva feeds (according to Mr. Allen Hill) in July in the umbels of *Cicuta virosa*. (If the continental *Daucella* be identical, the larva also feeds on *Phellandrium aquaticum*, changing to the pupa state within the stem of that plant.)

35. **badiella**, Hüb. Tin. 92 (1801); Treit.; Zell.; Sta.; Step.? Alis anticis latiusculis *saturate fusco-brunneis*, striis numerosis *saturate fuscis*, punctis duobus disci, altero ante, altero pone medium *saturate fuscis*, *squamis albidis interjectis*, fascia pallida postica angulata obsoleta. Exp. al. 11 lin.

Head and face greyish-fuscous. Palpi dark fuscous, internally pale greyish-ochreous; terminal joint paler, with the base, and a ring before the pale ochreous apex, dark fuscous. Anterior wings rather broad, *dark fuscous-brown*, with some obscure darker longitudinal streaks; towards the inner margin near the base is a large dark fuscous blotch; on the disc is a dark fuscous spot before the middle, and another beyond the middle, *generally accompanied with some whitish scales*; a pale angulated hinder fascia is indistinctly indicated by some whitish scales; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale fuscous. Posterior wings grey, with greyish-fuscous cilia.

A variety occurs of which the brush beneath the second joint of the palpi is bright ochreous.

Occurs at Sanderstead and Stoa's Nest among the juniper-bushes in August.

36. **Pastinacella**, Dup. L. F. xi. 153. pl. 291. f. 4 (1838); Sta. Alis anticis *angustulis dilute griseo-fuscis*, punctis tribus ante medium *saturate fuscis*, punctis duobus disci, altero in medio, altero pone medium *saturate fuscis*, *spatio interjecto dilutiore*, fascia postica pallida obsoleta angulata. Exp. al. 11½ lin.

Head and face pale greyish-ochreous. Palpi pale greyish-ochreous; terminal joint with the base, and a ring before the pale yellowish apex, dark fuscous. Antennæ fuscous. Anterior wings *rather narrow, pale greyish-fuscous*, with a dark fuscous spot at the base of the costa, and a

dark fuscous blotch near the inner margin towards the base; *before the middle are three dark fuscous spots* (one on the fold, one above it on the disc, and one rather anterior a little towards the costa); in a line with the middle one are *two other dark fuscous spots on the disc, the space between which is generally paler* than the ground-colour of the wing; beyond is the pale rather indistinct angulated fascia; the hinder margin and apex of the costa are spotted with fuscous; cilia pale greyish-ochreous. Posterior wings whitish-grey, posteriorly fuscous, with very pale greyish-ochreous cilia.

Not common; occurs at Mickleham and Folkstone, in September.

37. **Heraciana**, De Geer, ii. 1. 407 (1771); Stép.—*Heracleana*, Zell.; Sta.; Linn.?—*Heraclei*, Retz.; Haw.—*umbellana*, Fab.? Alis anticis latiusculis *griseo-ochreis*, striis numerosis fuscis, *punctis tribus disci* (primo ante, secundo et tertio post medium) *saturatioribus albido-cinctis*, fascia postica pallida angulata. Exp. al. 12–13 lin.

Head and face greyish-ochreous. Palpi fuscous, internally pale ochreous; terminal joint with a dark fuscous ring before the pale yellowish apex. Antennæ greyish-ochreous, with fuscous annulations. Anterior wings rather broad, *greyish-ochreous*, with numerous short fuscous longitudinal streaks; at the base of the costa is a fuscous spot, and a fuscous dash lies near the inner margin towards the base; *on the disc are three darker spots* (one before, the others beyond the middle), *surrounded by some whitish scales*; the pale hinder fascia is rather acutely angulated; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale greyish-ochreous, varied with fuscous. Posterior wings pale grey, with paler cilia.

Generally distributed throughout the country; appearing in August and September, but hibernated specimens are more frequently met with in April. The larva feeds on the leaves and in the umbels of *Heracleum Sphondylium*, changing to the pupa either on the ground or within the stem of that plant.

## Genus VII. **PSORICOPTERA.**

PSORICOPTERA, n. g. *Gelechia* p., Zell.

Capilli depressi. Ocelli nulli. Antennæ articulis confertis. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales medioeres, reflexi, articulo secundo infra scopiformi, *tertio leni, acuto, supra squamis projicientibus*. Alæ anteriores elongatæ, tuberculatæ, mediocriter ciliatæ; posteriores trapezoidales, margine postico ante angulum analem leviter sinuato, ante apicem leviter emarginato, longius ciliatæ.

Head smooth. Ocelli none. Antennæ with the joints thickly set. Tongue of moderate length, clothed with scales. Maxillary palpi very short. Labial palpi moderately long, reflexed; the second joint beneath resembling a brush; *the terminal joint thin and pointed, above with projecting scales.* Abdomen rather depressed. Anterior wings elongate, with raised tufts of scales; the cilia moderately long. Posterior wings trapezoidal, the hinder margin slightly sinuated before the anal angle, and slightly emarginate below the apex, with longer cilia.

Only one species is at present known in this genus.

1. **gibbosella**, Zell. Isis, 1839. p. 202.—*Zephyrella*, Step.? Alis anticis griseo-marmoratis, costam versus dilutionibus, ipsa basi dorsi albida, striga obliqua juxta basin nigra, macula oblonga costæ mediæ fusca, fascia postica angulata albida obsoleta, maculis tribus scabris supra plicam fuscis. Exp. al. 8 lin.

Head and face greyish-fusca. Palpi yellowish; terminal joint fuscous, except the apex. Antennæ fuscous, with paler annulations. Anterior wings marbled-grey, with the extreme base of the inner margin whitish, and an oblique black streak very near the base (as in many of the *Depressariæ*); the costal half of the wing is generally paler, but there is a conspicuous fuscous blotch on the costa about the middle; the pale angulated fascia is rather indistinct; along the fold are three fuscous tufts of elevated scales; cilia greyish-fuscous. Posterior wings fuscous, paler at the base, with greyish-fuscous cilia.

Not common; has occurred in Hainault Forest in July. The larva (according to Lienig) feeds in June, on willows, turning down a corner of a leaf.

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#### Genus VIII. **GELECHIA.**

*Gelechia* p., Zell. Isis, 1839, p. 197. *Recurvaria* p., Haw. *Anacampsis* p., Curt. *Hamylis* p., Lita p., et *Cecophora* p., Treit. *Anacampsis* p., *Acompsia*, et *Harpagus*, Step. *Anacampsis*, *Acompsia*, et *Lita*, Dup. *Mesophleps* p., *Acompsia* p., *Nothris* p., *Scythropia* p., *Gelechia*, *Brachmia* p., et *Chionodes* p., Hüb.

Capilli depressi. Ocelli nulli. Antennæ articulis confertis. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales medioeres vel longi, reflexi, articulo secundo infra *vir* scopiformi (interdum *levis*), tertio tenui, *levis*, acuto. Alæ anteriores oblongæ vel elongatæ, mediocriter ciliatæ; *posteriores trapezoidales, ante apicem leviter vel multo emarginatæ.* Alæ anteriores: vena apicalis furcata ante apicem exit, infra eam venæ quinque (rarius vena apicalis trifida ante et infra apicem exit, infra eam venæ quatuor); posteriores: vena apicalis furcata supra et infra apicem exit, infra

cam vena unica, e venula transversa (vel vena apicalis simplex in apicem exit, infra cam venæ duæ e venula transversa); vena mediana trifida.

Head smooth. Ocelli none. Antennæ with the joints thickly set. Tongue of moderate length, clothed with scales. Maxillary palpi very short. Labial palpi moderately long, or long, reflexed; the second joint beneath slightly broader, with appressed scales, *hardly* resembling a brush, sometimes quite smooth (*G. næviferella*); the third joint slender, *smooth* and pointed. Anterior wings oblong or elongate, with moderately long cilia; *the posterior wings trapezoidal, slightly or deeply emarginate below the apex.* In the anterior wings the furcate apical vein terminates in the costa before the apex; below it are five veins from the discoidal cell; more rarely (*G. leucatella*, *bifractella*, etc.) the apical vein is trifid, the third branch running into the hinder margin below the apex, and below it are only four veins from the discoidal cell. In the posterior wings the apical vein is furcate, terminating above and below the apex; below it is only one vein from the transverse vein; or else (*costella*, *tricolorella*, etc.) the apical vein is simple, and below it are two veins from the transverse vein; the median vein is trifid.

A genus of great extent, and comprising a great diversity of species, but which unfortunately we cannot subdivide into other genera. In this country we have no less than ninety-five species, and probably as many more are known on the continent.

As might be expected, there is considerable diversity in the habitats of the species; some frequenting stems of trees, other taking shelter in the grass. All the species are extremely active in the perfect state, and their flights are only for a short distance at a time; when they settle, they frequently immediately seek a place of concealment, whereby the collector is often baulked in his pursuit of some rarity. The habits of the larvæ are extremely varied: that of *G. Populella* rolls up the leaves of the poplar and willow much like a *Tortrix*-larva; that of *G. rufescens* twists up grass-leaves, bleaching them by eating them half through; that of *G. Malvella* feeds in the seeds of the hollyhock, proceeding regularly through the circular row of seeds, much to the annoyance of the horticulturist; that of *G. mulinella* enters the unopened flower-buds of the furze and broom, and devours the incipient fructification of the flower, after having eaten which it proceeds to the next flower and repeats the process; that of *G. Diffinis*, which is extremely active, feeds near the root of the dwarf sorrel (*Rumex Acetosella*); that of *G. acuminatella* mines in the leaves of the thistle; that of *G. notatella* burrows in the woolly substance on the underside of the leaves of the willow; that of *G. scriptella* turns down a piece of maple-leaf, fastens it in its position by several silken cables, and eats the leaf half through; that of *G. fra-*

*ternella*, a fat sluggish larva, feeds in the young shoots of *Stellaria uliginosa*, which, from the presence of the larva, assume a peculiar knobbed and contorted appearance; that of *G. bifractella* feeds in the seeds of the *Conyza squarrosa*, which it by some means unites together, forming a firm, almost impenetrable substance, within which it is completely sheltered from all the vicissitudes of the weather; that of *G. Cerealella* (according to Réaumur) feeds in the interior of grains of barley and wheat, entering the grain immediately it is hatched, and remaining within till it has undergone its transformations, and only coming out in the perfect state; that of *G. subocellea* (in other respects the most aberrant species of the genus) feeds on the flowers of the marjoram (*Origanum vulgare*), of which it constructs a case, thereby resembling the *Coleophora*. The species that feed in buds and shoots are of course mostly in the larva state in spring and the beginning of summer, those that feed in or on leaves are met with in summer and autumn, and those that feed on seeds do so in the autumn and winter. The perfect insects are successively to be met with from April to October, and several species are known to hibernate.

It is not easy to tabulate the species of this genus; the best I have been able to accomplish is as follows:—

- a. Anterior wings not rounded at the apex.
  - b. Anterior wings unicolorous. Species 1, 2.
  - b b. Anterior wings with spots. Species 3, 4.
- a a. Anterior wings rounded at the apex.
  - c. Posterior wings broader than the anterior wings. Species 5–69.
  - c c. Posterior wings as narrow as, or narrower than the anterior wings.
    - d. Anterior wings with no sharp markings in the cilia.
      - e. Anterior wings without markings. Species 70, 71.
      - e e. Anterior wings with a single white fascia. Species 72–74.
      - e e e. Anterior wings with one or more dark spots on the disc. Species 75–89.
      - e e e e. Anterior wings with oblique silvery streaks from the costa. Species 90–92.
      - e e e e e. Anterior wings with longitudinal dark streaks (like a *Coleophora*). Species 93, 94.
    - d d. Anterior wings with sharp markings in the apical cilia. Species 95.

1. **cinerella**, Linn. F. S. 1445 (1761); Fab.; Treit.; Step.; Dup.; Hüb.?—*cinerea*, Haw.—*ardeliella*, Hüb. Alis anticis nitidis luteo-cinereis immaculatis. Exp. al. 8–9 lin.

Head and face yellowish-grey. Palpi yellowish-grey, internally paler.

Antennæ fuscous. Anterior wings shining, *yellowish-grey*, without any markings; cilia rather paler. Posterior wings pale grey, with greyish-fuscous cilia.

Appears in June and July, in bushy places of mixed growth; not uncommon.

2. **rufescens**, Haw. L. B. 555 (1829); Step.; Curt.—*tinctella*, Step.—*diaphanella*, Licnig.—*Isabella*, Zell. Alis anticis *rufo-ochreis*, *venis vix dilutioribus*, puncto fuscescente obsoleto disci pone medium. Exp. al. 8 lin.

Head and face reddish-ochreous. Palpi reddish-ochreous, internally pale ochreous. Antennæ pale ochreous, annulated with pale fuscous. Anterior wings *reddish-ochreous*, with all the veins slightly paler, and some faint indication of a fuscous spot on the disc beyond the middle; cilia pale ochreous. Posterior wings whitish-grey, with whitish-ochreous cilia.

Not uncommon in June and July in grassy banks, but very retired in its habits. The larva is abundant in April and May in rolled grass-leaves, and is probably identical with that figured by Fischer as the larva of *G. terrella*.

3. **inornatella**, Dougl. Ent. Trans. i. n. s. 65 (1850). Alis anticis *dilute griseo-ochreis*, punctis tribus nigris (uno plicæ, altero disci posteriore ante medium, tertio disci pone medium), nebula fusca costæ pone medium, maculis oppositis obsoletis dilutioribus marginem posticum versus. Exp. al. 6½ lin.

Head and face pale greyish-ochreous. Palpi pale greyish-ochreous, internally rather paler; terminal joint with a fuscous ring before the apex. Antennæ greyish-ochreous, annulated with fuscous. Anterior wings *pale greyish-ochreous*, with three black spots (one on the fold, one rather posterior to it on the disc, both before the middle, and one on the disc beyond the middle); above the latter is a slight fuscous cloud on the costa; very near the hinder margin are two pale opposite spots, which nearly form a straight fascia, attenuated in the middle, immediately beyond are a few black scales; the hinder margin is spotted with dark fuscous, and in the apex of the wing is a slight fuscous cloud; cilia pale yellowish. Posterior wings pale grey, with paler cilia.

Not uncommon in the Cambridgeshire fens in June.

4. **gerronella**, Zell. Ent. Ztg. 1850. p. 155; Dougl. Alis anticis *ochraceis fusco-nebulosis*, præcipue costam et marginem posticum versus, *fascia indistincta obliqua fusca* pone medium, fascia angulata dilutiore in nebulam posticam, *punctis tribus* (primo plicæ ante medium, secundo disci in medio, tertio disci pone medium) *nigris*. Exp. al. 5-6 lin.

Head and face ochreous. Palpi pale ochreous; terminal joint with a fuscous ring before the apex. Antennæ ochreous, annulated with



fuscous. Anterior wings *ochreous, clouded with fuscous*, especially towards the costa and hinder margin; *an oblique rather indistinct fuscous fascia goes from the middle of the costa to the anal angle*; near the hinder margin is an indistinct pale angulated fascia; *on the disc are three black spots* (one on the fold before the middle, one on the disc in the middle, and the third on the disc at the commencement of the oblique fuscous fascia); cilia ochreous. Posterior wings grey, with paler cilia.

Occurs at Dartford Heath and West Wickham, among fern, in July.

5. **vilella**, Zell. Isis, 1847. p. 845; Dougl.—*subcinerea*, Haw.? Step? Alis anticis *angustulis dilute griseo-ochreis*, squamis numerosis fuscis, præcipue apicem versus, *puncto basali costæ, puncto prope dorsum juxta basim*, puncto minore basali plicæ, *nigris, punctis duobus dilutis disci*, in quibus squamæ nonnullæ fuscæ. Exp. al.  $9\frac{1}{2}$  lin.

Head and face pale ochreous. Palpi pale ochreous, internally whitish; terminal joint pale ochreous, with a dark fuscous ring before the apex. Antennæ fuscous, darker at the base. Anterior wings *rather narrow, pale greyish-ochreous*, with numerous fuscous scales, especially towards the apex, *with a black spot at the base of the costa, and one near the inner margin close to the base*; at the base of the fold are a few black scales; on the disc are two pale spots (one before, the other beyond the middle), in the centre of each are a few fuscous scales, giving them an annulated appearance; cilia pale ochreous. Posterior wings whitish-grey, with greyish-ochreous cilia.

This occurs in company with the *Depressariæ*, which it somewhat resembles, in old thatch at Folkstone in September; also in the Isle of Wight. I have a specimen taken at Lewisham in June; hence the species is probably double-brooded.

6. **basalis**, Dougl. n. s.—*Hippophaëlla*, Schr.? Alis anticis *dilute griseo-ochreis, macula oblonga costæ basali nigra*, punctis tribus (uno plicæ, altero majore disci ante, tertio obsoleto disci pone medium) *nigris*, fascia pallida angulata pone medium. Exp. al. 8 lin.

Head and face greyish-ochreous. Palpi greyish-ochreous; terminal joint with two faint fuscous rings, one at the base, the other below the apex. Antennæ greyish-ochreous. Anterior wings *pale greyish-ochreous, with an oblong black spot at the base of the costa*; near the base of the inner margin is a minute black spot; a small black spot lies on the fold, and a larger one beyond it on the disc before the middle; an almost obsolete black spot lies on the disc beyond the middle; beyond this is a faintly indicated, pale, angulated fascia; on the hinder margin are a few black spots; cilia greyish-ochreous. Posterior wings pale greyish-fuscous, with pale ochreous cilia.

Taken at Deal in September.

7. **Malvella**, Hüb. Tin. 281 (1812); F. v. R. pl. 46; Dup.; Zell.; Dougl.—*Listeri*, Haw.?—*Listerella*, Step.? Alis anticis *dilute*

*brunneo-ochreis*, apicem versus fusco-suffusus, punctis tribus (primo plicæ, secundo posteriore disci ante medium, tertio disci pone medium) fuscis, fascia pone medium fusca ad costam et dorsum saturatiore, postice in medio producta, fasciæque postica angulata pallida. Exp. al. 9 lin.

Head and face pale ochreous. Palpi pale ochreous, internally whitish. Antennæ fuscous, annulated with ochreous. Anterior wings *pale brownish-ochreous*; before the middle are two fuscous spots, one on the fold, the other posterior on the disc; beyond the middle is another fuscous spot on the disc; it is followed by a *fuscous fascia*, which is most distinct on the costa and inner margin, in the middle it is a little produced posteriorly; beyond it is a pale angulated fascia of the ground-colour, the apical portion of the wing being suffused with fuscous; the hinder margin and apex of the costa are alternately fuscous and pale ochreous; cilia pale greyish-ochreous, intersected by a fuscous line. Posterior wings pale grey, with greyish-ochreous cilia.

A common species in gardens, frequenting hollyhocks in June and July. The larva feeds in the seeds of the hollyhock in September and October; when full-fed descending to the earth, in which it constructs a cocoon, and remains unchanged throughout the winter.

8. **Populella**, Linn. F. S. 1442 (1761); Fab.; Treit.; Step.; Dup.; F. v. R. pl. 76. pl. 77. f. 1.—*Populi*, Haw.—*tremella*, W. V.—*blattariella*, Hüb.—*Juniperella*, Step.—*Tremulella*, Dup. Alis anticis cinereis, dorsum versus fusco-suffusus, fusco-maculatis, fascia postica diluta angulata, costam versus dentata. Exp. al. 8 lin.

Head greyish-fuscous. Face paler. Palpi greyish-fuscous, internally pale ochreous. Antennæ whitish, annulated with dark fuscous. Anterior wings *greyish-fuscous*, clouded with fuscous along the inner margin, and with several dark fuscous spots (of which one at the base of the costa, one above the fold not far from the base, one on the fold, and one posterior to it on the disc before the middle, and one on the disc beyond the middle, which is frequently followed by two others, one rather towards the costa, and the other a little above the fold); beyond the middle is a pale angulated fascia, which is indented below the subcostal vein; beyond it is a fuscous cloud; the hinder margin and apex of the costa are spotted with black; cilia pale greyish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

Extremely variable in the colour and intensity of the markings of the anterior wings. In one variety (of not unfrequent occurrence) the anterior wings are almost entirely suffused with dark fuscous, leaving only the costa of the pale ground-colour, and the hinder fascia, remaining of the usual colour, is remarkably conspicuous.

Abundant among poplars and willows, resting on the trunks, or on palings in the vicinity; the perfect insect appears at the end of June, and keeps out a long while. The larva feeds at the end of May and beginning of June, in rolled-up leaves of poplar, willow, and birch.

9. **nigra**, Haw. L. B. 550 (1829); Dougl.—*rusticella*, Step.—*cautella*, Zell.; Dup. Alis anticis saturate fuscis, albido-squamatis, stris tribus in medio nigris, fascia postica valde obsoleta, squamis albidis composita. Exp. al.  $7\frac{1}{2}$  lin.

Head dark fuscous. Face whitish. Palpi dark fuscous, internally whitish; terminal joint whitish, with two broad fuscous rings. Antennæ fuscous. Anterior wings dark fuscous, with some obscure darker markings, and with numerous whitish scales; the most distinct of the dark markings are three elongate black spots in the middle (one on the fold, one on the disc, and one towards the costa); beyond the middle the whitish scales form an indistinct angulated fascia; cilia greyish-white. Posterior wings pale grey, with greyish-fuscous cilia.

Not uncommon in June and July on the stems of the white poplar trees at Wanstead; it is difficult to secure, as on the approach of the collector it flies away.

10. **temerella**, Licnig, Isis, 1846. p. 284.—*pernigrella*, Dougl. Alis anticis nigris, punctis tribus atris obsoletis, fascia postica nebulosa atra. Exp. al.  $5\frac{1}{2}$  lin.

Head black. Face dark fuscous. Palpi grey, internally whitish; terminal joint externally dark fuscous. Antennæ dark fuscous. Anterior wings black, with three rather indistinct deep black spots (one on the fold, one posterior to it on the disc before the middle, and one on the disc beyond the middle); beyond the middle is a deep black cloudy fascia; and on the hinder margin and apex of the costa are some deep black spots; cilia blackish. Posterior wings dark greyish-fuscous, with paler cilia.

Hitherto found only in Lancashire and Cheshire, where it is not unfrequent among sallows in July. The larva feeds in the terminal shoots of the sallows in June.

11. **lentiginosella** (Tischer), Zell. Isis, 1839. p. 198; F. v. R. pl. 80. f. 3; Dougl.—*obscuraella*, Hub.? Treit.? Alis anticis saturate brunneo-fuscis, punctis tribus (uno plicæ, altero posteriore disci ante medium, tertio disci pone medium) nigris rufescente-cinctis, maculis posticis oppositis dilute rufescentibus, costali distinctiore. Exp. al.  $7\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi dark fuscous, internally pale ochreous. Antennæ fuscous. Anterior wings dark brownish-fuscous, with three black spots (one on the fold, a second posterior to it on the disc before the middle, the third on the disc beyond the middle), each surrounded by reddish-ochreous; beyond the middle are two small pale reddish-ochreous opposite spots, of which that on the costa is the more distinct; cilia pale fuscous. Posterior wings pale grey, with pale greyish-fuscous cilia.

The perfect insect has very rarely been met with; it appears in July and August among *Genista tinctoria*, and has occurred near Bristol, Epping, and Tunbridge Wells. The larva feeds in May

and June on the *Genista tinctoria*, drawing together the terminal shoots.

12. **velocella** (Tischer), Dup. L. F. xi. 287. pl. 297. f. 3 (1838); F. v. R. pl. 77. f. 4; Zell.; Dougl.—*subsequella*, Treit. Alis anticis *saturate fuscis*, punctis tribus (uno plicæ, altero posteriore disci ante, tertio disci pone medium) *saturate fuscis*, *subscabris*, *maculis posticis oppositis albidis*, *costali distinctiore introrsum spectante*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi dark fuscous, internally pale yellowish. Antennæ dark fuscous. Anterior wings *dark fuscous*, with three dark fuscous spots (one on the fold, one posterior to it on the disc before the middle, and one on the disc beyond the middle), *slightly raised*; beyond are two *whitish* ill-defined *opposite spots*, that on the costa being the more distinct, and *with its apex pointing rather inwards*; along the hinder margin are some dark fuscous scales; cilia pale fuscous. Posterior wings grey, with greyish-fuscous cilia.

Appears at the end of April and beginning of May, and again in August; frequent on Barnes Common, flying freely in the hot sunshine in the middle of the day.

13. **fumatella**, Dougl. Ent. Trans. i. n. s. 67 (1850). Alis anticis *grisco-fuscis*, apicem versus *saturate fuscis*, puncto *elongato* plicæ, puncto posteriore disci ante, puncto disci pone medium *nigris*, *squamis præcedentibus ac sequentibus albidis*, *maculis posticis oppositis*, *fere fasciam vix angulatam formantibus*, *subochraceis*. Exp. al. 7 lin.

Head greyish-fuscous. Face pale greyish-ochreous. Palpi fuscous, internally pale ochreous; terminal joint pale ochreous, with the base and a ring before the apex dark fuscous. Antennæ fuscous. Anterior wings *greyish-fuscous*, posteriorly much suffused with dark fuscous, with three black spots, one on the fold, rather *elongated*, one on the disc posterior to it before the middle, and the third on the disc beyond the middle; *these spots are preceded and followed by some whitish scales*; the two pale *dingy ochreous* opposite spots *almost form a slightly angulated fascia*; the hinder margin and apex of the costa are varied with black and whitish; cilia greyish-fuscous. Posterior wings grey, with greyish-fuscous cilia.

A scarce species, hitherto only met with among the sand-hills of the Cheshire coast, and at Dawlish Warren.

14. **ericetella**, Hüb. Tin. 470 (1829).—*Betulea*, Haw.; Step.—*gallinella*, Treit.; Dup.; Zell.—*lanceotella*, Step. Alis anticis *fuscis*, *punctis quatuor saturate fuscis*, *nigrisve*, ante et post *squamas albas* (primo supra plicam basim versus, secundo plicæ, tertio disci ante, quarto disci pone medium). Exp. al.  $7\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi dark fuscous, internally whitish. Antennæ dark fuscous. Anterior wings *fuscous*, *with four dark fuscous or black spots*, each preceded and followed by *some whitish scales*; the

first is above the fold not far from the base, the second on the fold, the third on the disc is larger and before the middle, the fourth is on the disc beyond the middle; the hinder margin and apex of the costa are spotted with black, with a few whitish scales; cilia fuscous, with a central darker line. Posterior wings pale grey, with pale greyish-fuscous cilia.

Abundant among heather in May, June, and July, in most parts of the country.

15. **mulinella** (Tischer), Zell. Isis, 1839. p. 199; Dougl.—*interrupta*, Haw.—*interruptella*, Steph.? Alis anticis griseo-ochreis, stria basali prope costam, stria latiuscula plicæ pone medium desinente, stria disci ante medium incipiente, usque ad apicem producta, saturate fuscis. Exp. al.  $6\frac{1}{2}$  lin.

Head and face greyish-ochreous. Palpi pale ochreous; terminal joint slightly spotted with fuscous. Antennæ fuscous. Anterior wings greyish-ochreous, with a dark fuscous streak at the base near the costa, and the costa clouded with fuscous (narrowly at first, but broader beyond the middle); a rather broad dark fuscous streak runs along the fold to beyond the middle, it is connected with a dark fuscous streak on the disc beginning before the middle and running to the apex; in the latter is an appearance of a darker fuscous spot beyond the middle; the apical portion of the wing is much suffused with fuscous; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-ochreous, varied with fuscous. Posterior wings pale grey, with greyish-ochreous cilia.

Very common among broom and furze in July and August. The larva feeds in April and May in the flowers of those plants.

16. **divisella**, Dougl. Ent. Trans. i. n. s. 60 (1850). Alis anticis costam versus dilute ochreis, dorsum versus dilute fuscis, divisione coloris fere lineam rectam ex basi usque ad apicem formante, ipsa costa pone medium breviter fusca, puncto plicæ ante medium, alteroque disci pone medium saturate fuscis. Exp. al.  $7\frac{1}{2}$  lin.

Head, face, and palpi pale ochreous. Antennæ pale ochreous, annulated with pale fuscous. Anterior wings pale ochreous towards the costa, pale fuscous towards the inner margin, the division of the colour forming nearly a straight line from the middle of the base to the apex of the wing; on the costa beyond the middle is a short fuscous line; a dark fuscous spot lies on the fold before the middle, and another on the disc beyond the middle, and there are frequently a few dark scales on the subcostal vein near the base; cilia ochreous. Posterior wings pale grey, with greyish-ochreous cilia.

Not common; occurs in June in the Cambridgeshire fens.

17. **palustrella**, Dougl. Ent. Trans. i. n. s. proc. 14 (1850). Alis anticis dilute griseo-ochreis, venis fere omnibus saturate fuscis, postice interdum in maculam saturate fuscam confluentibus, puncto clon-

gato disci in medio, punctoque rotundo pone medium nigris. Exp. al.  $8\frac{1}{2}$  lin.

Head and face pale greyish-ochreous. Palpi fuscous, internally pale greyish-ochreous; terminal joint pale greyish-ochreous, with a fuscous ring before the apex. Antennæ dark fuscous. Anterior wings *pale greyish-ochreous, with nearly all the veins indicated by dark fuscous streaks*, those below the apex of the wing most strongly marked and sometimes confluent, forming a dark fuscous blotch; on the disc in the middle is an elongate black spot, and beyond the middle is a nearly round black spot; cilia pale greyish-ochreous, tinged with fuscous. Posterior wings pale grey, with pale fuscous cilia.

But few specimens have yet occurred, and all those in the Cambridgeshire fens in July.

18. **sororculella**, Hüb. Tin. 440 (1816); Treit.; Frey; Zell.; Dougl. Alis anticis *griseo-fuscis*, dorsum versus sæpe dilutioribus, puncto nigro *elongato* plicæ ante medium, *linea longitudinali disci nigra*, ocello albido ante, punctoque albido post medium interrupta, fascia postica angulata, vix indentata, cinerea. Exp. al. 7 lin.

Head and face greyish-fuscous. Palpi dark fuscous, internally pale ochreous. Antennæ dark fuscous. Anterior wings *greyish-fuscous*, with the inner margin usually paler, with an *elongate* black spot on the fold before the middle, *a longitudinal black line on the disc interrupted before the middle by a whitish ocellus, and beyond the middle by a whitish spot*; the hinder fascia is somewhat cinereous, angulated and slightly indented; the hinder margin and apex of the costa are spotted with dark fuscous and whitish; cilia greyish-fuscous. Posterior wings pale greyish-fuscous, with paler cilia.

Not rare among sallows in July. The larva, which is more easily met with, feeds in the shoots of the sallow in May and June.

19. **cuneatella** (Zell.), Dougl. Ent. Trans. i. n. s. 242 (1852). Alis anticis *griseo-fuscis*, *striis longitudinalibus cuneiformibus nigris*, quatuor in medio conspicuoribus, oblique pone squamas albas positæ, fascia pallida angulata, plicam versus extrorsum curvata. Exp. al.  $7\frac{1}{2}$  lin.

Head greyish-fuscous. Face whitish. Palpi greyish-fuscous, internally whitish; terminal joint internally whitish, with a dark fuscous ring before the apex. Antennæ greyish-fuscous. Anterior wings *greyish-fuscous, with several longitudinal dark fuscous wedge-shaped streaks*; of which four in the middle of the wing placed obliquely beyond some whitish scales are conspicuous; beyond some rather conspicuous streaks near the costa beyond the middle is the pale angulated fascia, which towards the fold bends outwardly; the hinder margin and apex of the costa are spotted with black; cilia pale greyish-fuscous. Posterior wings pale fuscous, with paler cilia.

A specimen is in Mr. Bedell's collection, taken in Tower-street, some years back. Mr. Boyd took two specimens among willows at Hackney, last September.

20. **peliiella**, Treit. E. S. x. 3. 198 (1835); Dup.; Zell.; Dougl. Alis anticis *nigricantibus*, puncto plicæ basin versus, punctis duobus ante medium (altero plicæ, altero vix posteriore disci), nigris, squamis sequentibus albidis, puncto disci pone medium nigro albido-cincto, maculis posticis oppositis albidis, dorsali posteriore. Exp. al. 7 lin.

Head dark fuscous. Face pale ochreous. Palpi dark fuscous; internally and the tip of the terminal joint pale ochreous. Antennæ fuscous. Anterior wings dark greyish-fuscous, with a black spot on the fold not far from the base, and two black spots a little before the middle, one on the fold and one hardly posterior on the disc, both followed by some whitish scales; on the disc beyond the middle is a black spot almost encircled by some whitish scales; beyond are two whitish opposite spots, which almost form an angulated fascia, that on the inner margin is posterior to the costal spot; in the apex of the wing are a few whitish scales; cilia greyish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

Hitherto only taken at West Wickham Wood, in June and July.

21. **alacella** (Zell.), Dup. L. F. xi. 296. pl. 297. f. 12 (1838); Zell.; Dougl. Alis anticis *cærulescente-nigricantibus*, punctis duobus ante medium, altero plicæ, altero disci paullo posteriore, squamis sequentibus lutescentibus, puncto disci pone medium, squamis lutescentibus utrinque marginato, nigris, guttula dorsi, lunulaque posteriore costæ, lutescentibus. Exp. al.  $6\frac{1}{2}$  lin.

Head very dark fuscous. Face paler. Palpi dark fuscous; tip of the terminal joint pale ochreous. Antennæ dark fuscous. Anterior wings blackish, with a bluish tinge, with two black spots before the middle, one on the fold, and one rather posterior on the disc, both followed by some pale yellowish scales, and a black spot on the disc beyond the middle, preceded and followed by some pale yellowish scales; beneath it is a small pale yellowish spot on the inner margin, and beyond it on the costa is a larger lunular pale yellowish spot; the hinder margin and apex of the costa are spotted with black and pale yellowish; cilia dark fuscous. Posterior wings greyish-fuscous, with paler cilia.

A scarce species; has occurred near Leatherhead in July.

22. **longicornis**, Curt. B. E. fo. 189 (1827); Step.—*histrionella*, Hüb.; Dup.—*zebrella*, Treit. Alis anticis *albido-griseis, rufo-suffusis*, basi dorsi, stria obliqua costæ prope basin saturate fuscis, fascia in medio recta, saturate fusca, in qua puncta duo ovata saturatiora (alterum plicæ, alterum disci), puncto ovato disci pone medium saturate fusco. Exp. al.  $7\frac{1}{2}$  lin.

Head dark fuscous. Face greyish-fuscous. Palpi greyish-fuscous,

internally whitish. Antennæ fuscous. Anterior wings *pale whitish-grey, much suffused with reddish*, with the base of the inner margin and an oblique streak from near the base of the costa dark fuscous; in the middle is a dark fascia, in which are *two darker ovate spots* (one on the fold, and one on the disc); beyond the middle is a dark fuscous *ovate spot on the disc*, and beyond it are two other dark fuscous spots, one on the costa, and one on the inner margin; parallel to the hinder margin is a long fuscous spot; the hinder margin and apex of the costa are spotted with fuscous; cilia grey. Posterior wings greyish-fuscous, with paler cilia.

Common on the moors in the north of England, in May and June.

23. **diffinis**, Haw. L. B. 551 (1829); Step.?—*dissimilella*, Dup. pl. 297. f. 4.—*scabidella*, Zell.—*nebulea*, Haw.? Step.? Alis anticis *rufo-brunneis, stria obliqua costali prope basim, saturate fusca, cum macula transversali dorsi scabra confluyente, punctis duobus disci, in nebulam fuscam costalem inclusis, saturate fuscis, macula postica costæ, maculaque minore dorsi fuscis, fascia postica, fere obsoleta, angulata ochrea*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face greyish-fuscous. Palpi greyish-fuscous, internally paler; terminal joint pale yellowish, with two dark fuscous rings. Antennæ pale greyish-fuscous, with darker annulations. Anterior wings *reddish-brown* (sometimes with a slight violet tint), with an *oblique dark fuscous streak near the base of the costa, meeting in the fold a tuft of dark fuscous raised scales, situated perpendicularly on the inner margin*; in the middle are two or three small tufts of dark fuscous scales, connected with the costa by a fuscous blotch; beyond the middle is a small fuscous spot on the costa, and a smaller one opposite to it on the inner margin; immediately beyond them is a rather indistinct angulated ochreous fascia (sometimes interrupted by a dark fuscous streak); the hinder margin and apex of the costa are spotted alternately with pale and dark fuscous; cilia fuscous. Posterior wings pale grey, with greyish-fuscous cilia.

Common on Dartford Heath, Barnes Common, etc., in May, June, and August (?). The larva feeds in April on *Rumex acetosella*, forming a burrow down towards the root of the plant.

24. **terrella**, W. V. 140. 49 (1776); Hüb.; Treit.; Dup.; Zell.; F. v. R. pl. 80. f. 1. pl. 96.—*lutarea*, Haw.; Step.—*zephyrella*, Treit. Alis anticis *ochreo-brunneis, punctis tribus (uno plicæ, altero posteriore disci ante, tertio disci pone medium) nigris, fascia postica angulata obsoleta dilutiore*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face greyish-fuscous. Palpi fuscous, internally pale ochreous. Antennæ fuscous, with paler annulations. Anterior wings *ochreous-brown* (varying considerably in the shade of colour), with three black spots (one on the fold, one posterior to it on the disc before the middle, and one on the disc beyond the middle); beyond this is a rather



indistinct pale angulated fascia; the hinder margin and apex of the costa are spotted with dark fuscous; cilia rather paler than the wing. Posterior wings pale grey, with greyish-fuscous cilia.

A most abundant species everywhere among grass, in June and July. The larva figured by Fischer appears to be that of *G. rufescens*; the larva of *G. terrella* still remains to be discovered.

25. **desertella** (Edl.), Dougl. Ent. Trans. i. n. s. 62 (1850). Alis anticis *dilute* ochreo-brunneis, *puncto plicæ prope basin fusco*, punctis duobus ante medium (altero plicæ, altero posteriore disci) punctoque disci pone medium nigris, fascia postica dilutiore *obsoletissima*. Exp. al. 6 (*sex*) lin.

Head pale greyish-ochreous, darker in the middle. Face pale grey. Palpi pale fuscous, internally pale ochreous. Antennæ fuscous, with paler annulations. Anterior wings *pale* ochreous-brown, *with a fuscous spot on the fold near the base*, two black spots before the middle (one on the fold, the other a little posterior on the disc), and one on the disc beyond the middle; the indications of a pale hinder fascia are *hardly perceptible*; the hinder margin and apex of the costa are spotted with dark fuscous; cilia pale fuscous or pale ochreous. Posterior wings pale grey, with pale greyish-fuscous cilia.

Common on the sand-hills of the Cheshire coast, and in the Isle of Portland, in June and July.

26. **politella** (Dougl.), Sta. Sup. Cat. p. 4 (1851); Dougl. Alis anticis *nilidis*, ♂ *olivaceo-griseis*, (♀ *angustioribus dilute vel brunneo-ochreis*,) punctis tribus (uno plicæ, altero posteriore disci ante, tertio disci pone medium) ♂ *subobsoletis* fuscis (♀ *distinctis subnigris*). Exp. al. ♂  $7\frac{1}{2}$ ; ♀  $6\frac{1}{2}$  lin.

Head and face greyish-fuscous. Palpi fuscous, internally pale ochreous. Antennæ fuscous. Anterior wings *shining olivaceous-grey*, with a spot on the fold, one on the disc rather posterior before the middle, and one on the disc beyond the middle, fuscous, but *rather indistinct*; the hinder margin and apex of the costa are spotted with fuscous; cilia pale fuscous. Posterior wings pale grey, with greyish-fuscous cilia.

The female has the head, face, palpi, and narrower anterior wings pale ochreous, or pale brownish-ochreous, and the spots on the anterior wings more distinct and almost black.

Common at the foot of Skiddaw, among heather, in June, 1846; since taken by Mr. Logan, on the Pentlands.

27. **acuminatella**, Sircom, Zool. 1850, App. lxxii.; Dogul.—*Cirsiaella*, Sta.—*pulliginella*, Sircom? Alis anticis *dilute brunneis, fuscosuffusis*, plicæ lineaque superiore parum suffusis, puncto plicæ, puncto posteriore disci (*interdum in duo cuneiformia diviso*) ante medium, punctoque disci pone medium nigris, maculis oppositis dilutioribus fere fasciam subangulatam formantibus. Exp. al.  $6\frac{1}{2}$  lin.

Head greyish-fuscous. Face pale greyish-ochreous. Palpi pale fuscous, internally pale ochreous; terminal joint pale ochreous, with a fus-

cous ring before the apex. Antennæ fuscous, beneath spotted with pale ochreous. Anterior wings (in the ♀ rather acuminate) pale brown, very much suffused with fuscous, the fold and a line above it being almost the only unsuffused portions of the wing; a black spot lies on the fold before the middle, and on the disc a little posterior is another, *sometimes divided into two wedge-shaped spots*; on the disc beyond the middle is another black spot; beyond are two pale opposite spots, which appear to form a slightly angulated fascia; between them is sometimes a dark fuscous elongated spot; the hinder margin and apex of the costa are almost uninterruptedly dark fuscous; cilia pale fuscous. Posterior wings pale grey, with greyish-ochreous cilia.

Not uncommon; appearing in May and August. The larva, which is more easily seen, mines the leaves of the thistle (*Cirsium lanceolatum*) in July and September.

28. **Artemisiella** (Tischer), Treit. E. S. ix. 2. 97 (1833); F. v. R. pl. 30. f. 2; Dup.; Zell.; Dougl. *Alis anticis rufo-brunneis, dorso dilutior, punctis duobus plicæ, duobusque disci oblique positis posterius nigris*. Exp. al. 5–5½ lin.

Head greyish-fuscous. Face paler. Palpi dark fuscous, internally paler; terminal joint with two fuscous rings. Antennæ fuscous, with paler annulations. Anterior wings *reddish-brown, with the inner margin paler; on the fold are two black spots, one being in the middle, and one beyond; obliquely beyond these are two others on the disc; on the hinder margin and apex of the costa are some black spots*; cilia greyish-ochreous. Posterior wings pale grey, with greyish-fuscous cilia.

Common in June and July among the short grass in sandy and gravelly places, near Epsom, Box Hill, Dawlish Warren, the Cheshire coast, etc. The larva (according to Tischer) feeds in May in the terminal shoots of *Artemisia campestris*.

29. **senectella** (F. v. R.), Zell. Isis, 1839. p. 199; Dougl. *Alis anticis dilute griseo-ochreis, fusco-suffusis (saepe omnino fuscis), macula basali costæ, macula minore costæ pone medium, punctoque elongatulo plicæ prope basin fuscis, puncto uno plicæ, altero posteriore disci ante, tertio disci pone medium nigris, fascia postica dilutior angulata subdistincta*. Exp. al. 5½ lin.

Head pale greyish-ochreous. Face pale ochreous. Palpi pale ochreous; terminal joint beneath spotted with fuscous. Antennæ fuscous. Anterior wings *pale greyish-ochreous, considerably suffused with fuscous (sometimes entirely so), with a dark fuscous spot at the base of the costa, a smaller one on the costa beyond the middle, and a rather elongated one on the fold near the base*; on the fold is a black spot, and another posterior to it on the disc before the middle, a third being on the disc beyond the middle; beyond this is a rather distinct pale angulated fascia; cilia pale greyish-ochreous. Posterior wings pale grey, with pale greyish-fuscous cilia.

Not rare in dry places among fern, in July; Dartford Heath.

30. **mundella**, Dougl. Ent. Trans. i. n. s. 64 (1850). Alis anticis *dilute lutescente-griseis, punctis sex nigris*, quorum duo minuta basalia costam et dorsum versus, duo plicæ (prius prope basim, posterius ante medium), duoque disci; margine postico fusco. Exp. al. 5 lin.

Head and face pale yellowish-grey. Palpi yellowish; terminal joint fuscous. Antennæ fuscous, with paler annulations. Anterior wings *pale yellowish-grey, with six black spots*, two very minute at the base (one near the costa, the other on the inner margin), two on the fold (one near the base, the other before the middle), and two on the disc (the first being in the middle of the wing); hinder margin fuscous; cilia greyish-fuscous. Posterior wings whitish-grey, with yellowish-grey cilia.

This pretty little species occurs among the sand-hills at New Brighton, and elsewhere on the Cheshire coast, in May and June.

31. **similis**, Dougl. n. sp. Alis anticis *saturate brunneo-fuscis, punctis duobus elongatis* ante medium (altero plicæ, altero posteriore disci), puncto *tertio* rotundo disci pone medium, *obsoletis nigris*, fascia postica angulata obsoleta lutescente, *ad costam distinctiore*. Exp. al. 6 lin.

Head dark fuscous. Face greyish-ochreous. Palpi greyish-ochreous; second joint externally brownish; terminal joint dark fuscous. Anterior wings *dark brownish-fuscous, with two elongate, rather obsolete black spots* before the middle (one on the fold, the other posterior to it on the disc); an obsolete round black spot is on the disc beyond the middle; beyond this is a faint pale angulated fascia, *most distinct on the costa*, where it appears as a pale yellowish spot; cilia greyish-brown. Posterior wings pale grey, with pale fuscous cilia.

Taken by Mr. Douglas in July, at Stoot's Nest, Charlton, and near Mickleham, flying in the evening among thatch.

32. **affinis**, Haw. L. B. 551 (1829); Step.; Dougl.—*umbrosella*, Zell.; Dup.? Alis anticis *fuscis, punctis quatuor nigris externe albosquamatis*, primo plicæ basim versus, secundo plicæ mediæ, duobus disci pone medium, *maculis posticis oppositis, dorsali posteriore, albidis*. Exp. al. 5½ lin.

Head dark fuscous. Face whitish. Palpi ochreous; terminal joint fuscous, with one or two pale ochreous spots. Antennæ unannulated, fuscous. Anterior wings *fuscous, with four black spots, each followed by some white scales*; the first is on the fold near the base, the second in the middle of the fold, the other two are on the disc beyond the middle; towards the hinder margin are *two opposite whitish spots*, of which *that on the inner margin is rather posterior*; in the apex of the wing are a few white scales; cilia greyish-fuscous. Posterior wings pale grey, with greyish-fuscous cilia.

Taken in various localities in July. I once bred it from a larva found (when full-fed) crawling on a mossy wall, in February.

33. **boreella**, Dougl. Ent. Trans. i. n. s. 105 (1851). Alis anticis *nitidis griseo-fuscis*, punctis duobus ante medium (altero plicæ, altero posteriore disci) punctoque disci pone medium nigris, *squamis nonnullis lutescentibus pone punctum plicæ et inter puncta disci*, fascia postica angulata et dentata lutescente. Exp. al.  $6\frac{1}{2}$  lin.

Head dark fuscous. Face dark fuscous, rather shining. Palpi dark fuscous, internally a little paler. Antennæ dark fuscous, beneath spotted with pale fuscous. Anterior wings *shining greyish-fuscous*, with two black spots before the middle (one on the fold, the other, posteriorly placed, on the disc), and a black spot on the disc a little beyond the middle; *beyond the spot of the fold and between the two spots of the disc are some yellowish scales*, and beyond the middle is a somewhat indented, slightly angulated *pale yellowish* fascia; the hinder margin and apex of the costa are dark fuscous; cilia greyish-fuscous. Posterior wings pale grey, with paler cilia.

I have a single specimen, taken in a boggy place near Dunoon, in the middle of July.

34. **galbanella** (F. v. R.), Zell. Isis, 1839. p. 200; Dougl. Alis anticis *latusculis luteo-griseis*, punctis duobus ante medium (altero plicæ, altero posteriore disci), punctoque disci pone medium nigris, spatio pone punctum plicæ, et inter puncta disci *fere lutescente absque griseo*, fascia postica *subobsoleta* angulata non dentata dilutiore. Exp. al.  $7\frac{1}{2}$  lin.

Head yellowish-grey. Face paler. Palpi externally dark fuscous, internally pale ochreous. Antennæ yellowish-grey, annulated with dark fuscous. Anterior wings *rather broad, yellowish-grey*, with two black spots before the middle (one on the fold, and one rather posterior on the disc), and a black spot on the disc beyond the middle; the space beyond the spot on the fold and between the spots on the disc is *pale yellowish, with hardly any grey scales*; the pale hinder fascia is *rather indistinct, not indented*, and slightly angulated; the hinder margin and apex of the costa are spotted with dark fuscous; cilia grey. Posterior wings grey, with greyish-fuscous cilia.

Taken by Mr. Weaver, in the Black Forest, in Perthshire, in July.

35. **basaltinella**, Zell. Isis, 1839. p. 198; Dougl.—*domestica*, var.  $\beta$ , Haw. Alis anticis *fuscis*, punctis quatuor nigris (primo plicæ basim versus, secundo plicæ, et tertio approximato disci ante medium, quarto disci pone medium), spatio interjecto dilutiore, *maculis posticis oppositis* (dorsali nonnihil posteriore) dilute ochreis, *fere fasciam rectam formantibus*. Exp. al.  $5\frac{1}{2}$  lin.

Head dark fuscous. Face pale greyish-ochreous. Palpi dark fuscous, internally pale ochreous. Antennæ dark fuscous, with paler annulations. Anterior wings *fuscous*, with four black spots, one on the fold not far from the base, two a little before the middle (one on the fold, the other very near it on the disc), and one on the disc beyond

the middle; the space between these spots is paler than the rest of the wing; beyond the fourth spot are *two pale ochreous opposite spots* (that on the inner margin being slightly posterior), *almost forming a straight fascia*; cilia fuscous. Posterior wings grey, with greyish-fuscous cilia.

Taken by Mr. Bedell, among old thatch at Addington, in June and July; also by Mr. Douglas, in a similar locality.

36. **domestica**, Haw. L. B. 551 (1829); Step. Alis anticis *ochreo-griseis, fusco-mixtis*, puncto humerali nigro, puncto costæ pone medium saturate fusco, punctis quatuor nigris (primo plicæ basim versus, secundo plicæ, tertio approximato disci ante medium, quarto disci pone medium), spatio interjecto dilutiore, *fascia postica subdistincta dilutiore angulata*. Exp. al. 6 lin.

Head pale grey. Face whitish. Palpi whitish; terminal joint externally with a few fuscous spots. Antennæ dark fuscous, with pale grey annulations. Anterior wings *greyish-ochreous, more or less dusted with fuscous*, with a small black spot at the base of the costa, and a dark fuscous spot on the costa beyond the middle; a black spot lies on the fold, not far from the base, another is on the fold, and a third just above it on the disc a little before the middle, and a fourth on the disc beyond the middle; the space between these spots is paler than the rest of the wing; towards the hinder margin is a tolerably well-defined *pale angulated fascia*; cilia pale grey. Posterior wings whitish-grey, with pale greyish-fuscous cilia.

Occurs in July and August, most frequently in houses; rarely on fences in the country.

37. **rhombella**, Hüb. Tin. 277 (1812); Treit.; Dup.; Dougl.; W. V.?—*rhombea*, Haw. Alis anticis *cinereis, macula basali costæ nigra*, puncto postico costæ saturate fusco, puncto plicæ prope basim fusco, *punctis duobus disci (primo in medio, secundo majore pone medium) saturate fuscis*, nebula dorsi pone medium fusca, fascia postica indistincta dilutiore angulata. Exp. al. 6½ lin.

Head and face greyish-fuscous. Palpi dark fuscous, internally pale ochreous. Antennæ very pale fuscous, with dark fuscous annulations. Anterior wings *ashy-grey, with a long black spot at the base of the costa*, and a smaller dark fuscous spot beyond the middle of the costa; near the base towards the inner margin is a fuscous spot, and another, rather indistinct, lies on the disc a little beyond; *in the middle of the disc is a dark fuscous spot, and another, rather larger, is on the disc beyond the middle*; a fuscous blotch is on the inner margin beyond the middle; beyond this there are faint indications of a pale angulated fascia; on the hinder margin and apex of the costa are some small dark fuscous spots; cilia greyish-ochreous. Posterior wings pale grey, with paler cilia.

Occurs among apple-trees in July; taken formerly by Mr. S.

Stevens, at Hammersmith; not common. The larva (according to Lienig) feeds on apple, in May and June, turning down a corner of the leaf.

38. **proximella**, Hüb. Tin. 228 (1801); Treit.; Dup.; Zell.; Dougl.—*rhombella*, Step.?—*pullatella*, Dup.? Alis anticis *canescentibus tenerime obscurius irroratis*, punctis striolisve sparsis nigris, litura costali post medium fusciscente. Exp. al. 8 lin.

Head and face pale grey. Palpi pale grey; terminal joint whitish, with the base and two rings black. Antennæ pale grey, annulated with dark fuscous. Anterior wings *hoary-grey, with numerous black streaks and spots*; a black streak from the base of the wing near the costa, a short black streak on the costa in the middle, and a dark fuscous blotch on the costa beyond the middle; on the inner margin is a dark fuscous blotch near the middle, and a smaller one beyond the middle; very near the base on the fold is a smaller black spot, and before the middle are two black spots, one on the fold, the other anterior on the disc; in the middle are two rather long black spots (the smaller one on the fold, the larger and rather posterior on the disc); beyond the middle on the disc are two small round black spots, followed by a short black streak; the apical portion of the wing is clouded with dark fuscous, and the hinder margin and apex of the costa are spotted with black; cilia pale grey. Posterior wings pale grey, with paler cilia.

Common among birches in May and June. The larva feeds between united leaves of birch in September.

39. **notatella**, Hüb. Tin. 344 (1816); Treit.; Lienig; Dougl.—*proximella*, var.  $\beta$ . Zell. Alis anticis *griseis, saturatius nebulosis*, nebulis tribus costæ, prima basali, secundo ante, tertia pone medium, nebula majore dorsi (in quo puncta duo ante medium), punctis duobus in medio, duobusque disci pone medium nigris. Exp. al.  $6\frac{1}{2}$ –7 lin.

Head and face grey. Palpi grey; terminal joint paler, with the base and two rings black. Antennæ pale grey, annulated with dark fuscous. Anterior wings *grey, with numerous dark grey clouds*, three of which are on the costa (one at the base, one before, and the third beyond the middle); almost at the base on the fold is a small black spot; a large cloud occupies nearly the whole of the inner margin, on it are two black spots before the middle (one on the fold, the other anterior on the disc); in the middle are two other black spots, one on the fold, the other, above it, rather elongate on the disc; beyond the middle are two other small black spots on the disc; on the hinder margin and apex of the costa are some small dark fuscous spots; cilia grey. Posterior wings grey, with pale grey cilia.

Not uncommon among willows in May. The larva feeds on willows in September, between united leaves of the smooth-leaved species, and burrowing in the wool on the underside of the leaves of the woolly-leaved species.

40. **humeralis**, Zell. Isis, 1839. p. 200; Dougl.—*Lyellella* (Curt.); Westw.—*decorella*, Haw.? Alis anticis *angustulis*, albidis (interdum omnino fuscis), *striola humerali costali nigra*, puncto costæ mediæ parvo fusco, macula pone medium costæ saturate fusca, striola ei opposita transversali disci, puncto anteriore oblongo supra plicam, puncto altero basim versus, his punctis saturate fuscis *in maculam magnam dorsalem interdum inclusis*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face yellowish or dark fuscous. Palpi yellowish; terminal joint with a fuscous ring before the apex, frequently with another fuscous ring near the base. Antennæ fuscous, unannulated. Anterior wings *rather narrow*, of variable ground-colour, from yellowish-white to dark fuscous, with a *black streak at the base of the costa*; in the middle of the costa is a small fuscous cloudy spot, and beyond it a more distinct dark fuscous spot; opposite the latter is a dark fuscous transverse spot on the disc, before which is an oblong dark fuscous spot above the fold; between this and the base is a somewhat irregular dark fuscous spot on the fold; *the last three spots are sometimes included in a large dark blotch on the inner margin*; on the hinder margin and apex of the costa are some fuscous spots; cilia greyish-fuscous. Posterior wings pale grey, with greyish-fuscous cilia.

An extremely variable insect; appears in July and August; not unfrequent in the New Forest; scarce in other localities.

41. **vulgella**, Hüb. Tin. 346 (1816); Zell.; W. V.? Dup.?—*aspera*, Haw.; Step. Alis anticis *griseis*, nebulis tribus costæ, nebulaque in medio dorsi saturate griseis, *punctis duobus in medio scabris* nigris albido-cinctis, *macula transversali scabra nigra* ad angulum analem, fascia postica indistincta angulata dilutiore. Exp. al. 6 lin.

Head grey. Face paler. Palpi grey; terminal joint pale ochreous, with two fuscous rings. Antennæ fuscous, with paler annulations. Anterior wings *grey*, with three dark grey clouds on the costa (the first near the base, the second in the middle, the third beyond the middle), and a dark grey cloud near the middle of the inner margin; *in the middle of the wing are two raised black spots*, surrounded by whitish (one on the disc, the other rather posterior on the fold); *above the anal angle is a transverse raised black spot* reaching more than half across the wing; beyond is a faintly indicated pale angulated fascia; the hinder margin and apex of the wing are spotted with black; cilia grey. Posterior wings grey, with paler cilia.

Common among hawthorn in June and July. The larva feeds (I believe) in the young shoots of hawthorn in May.

42. **luculella**, Hüb. Tin. 397 (1816); Dup.; Zell.—*subrosea*, Haw.; Step.—*luctuella*, Step. Alis anticis *nigris*, *macula magna curvata subrosea ante medium costæ* fere plicam tangente, maculam minorem nigram costæ includente, maculis posticis oppositis, costali majore, albidis. Exp. al. 6 lin.

Head and face grey. Palpi greyish-fuscous; the terminal joint with

two pale ochreous rings. Antennæ fuscous, with indistinct paler annulations. Anterior wings *black, with a large curved pale yellow blotch before the middle of the costa*, reaching half across the wing, where it is tinged with rosy; on the costa it includes a small black spot; towards the hinder margin are two whitish opposite spots, of which that on the costa is the larger; cilia very dark grey. Posterior wings greyish-fuscous, with paler cilia.

Very common round London, on the stems of oaks in June.

43. **scriptella**, Hüb. Tin. 132 (1801); Treit.; Zell.; Dup.?—*Blattaria*, Haw. — *tremella*, Steph. Alis anticis *albis*, costam versus exalbidis, maculis costæ tribus (prima basali, secunda media, tertia pone medium) *nigris*, dorso usque pone medium late fusco, *puncto oblongo plicæ mediæ, striola posteriore disci, striolaque transversali disci pone medium scabris nigris*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face white. Palpi whitish; terminal joint with two black rings. Antennæ whitish, annulated with dark fuscous. Anterior wings *white*, towards the costa with a slight ochreous tinge, with the base of the costa, a spot in the middle, and a larger spot beyond the middle of the costa black; the inner margin is broadly fuscous from near the base to beyond the middle; *in the middle of the fold is a long black spot of raised scales, a short curved streak lies on the disc rather beyond, and a transverse streak is on the disc opposite to the last costal spot, but not reaching beyond the fold; these are likewise composed of raised black scales*; the apical portion of the wing is clouded with fuscous, with some darker spots towards the hinder margin; cilia whitish. Posterior wings pale grey, with paler cilia.

Common among maples in May and June. The larva feeds on the leaves of the maple in September, turning down a portion, securing the leaf in its folded position by several strong cables of silk, and then devouring the folded portion half through; they are extremely subject to the attacks of the *Ichneumonidæ*.

44. **fugitivella**, Zell. Isis, 1839, p. 200; Dougl. — *pullatella*, Evers.? Alis anticis *cinereis, saturate fusco-nebulosis*, basi dorsi, apicque exceptis, nebulis tribus costæ (prima basali, secunda ante, tertia pone medium) punctis duobus subscabris plicæ (altero ante medium, altero in medio) nebulæ dorsali prope basin *nigris*. Exp. al. 6 lin.

Head and face grey. Palpi grey; terminal joint with two dark fuscous rings. Antennæ grey, annulated with dark fuscous. Anterior wings *ashy-grey, much clouded with dark fuscous*, only a small patch at the base of the inner margin, and towards the apex of the wing *remaining unclouded*; along the costa are three almost black blotches, *one at the base, one before, and one beyond the middle*, and in the fold are two black rather raised spots, *one before and one in the middle*; on the inner margin not far from the base is a small black blotch; a fuscous cloud lies in the grey apical portion of the wing, and several



fuscous spots are on the hinder margin; cilia greyish. Posterior wings greyish-fuscous, with paler cilia.

Not scarce among elms in June and July. The larva (according to Lienig) feeds on nut, maple, and elm, in May.

45. **Æthiops** (West.), Hump. and West. B. M. ii. 192. pl. 107. f. 13 (1845); Dougl. Alis anticis *nigris*, *punctis scabris nigris* (primo disci ante medium, secundo majore, tertioque minore plicæ, quarta obliqua disci in medio, quinto pone medium transversali), fascia postica angulata diluta *obsoletissima*. Exp. al. 8 lin.

Head and face black. Palpi black, internally rather paler; terminal joint with a grey ring before the apex. Antennæ black. Anterior wings *black, with several raised tufts of black scales*, one before the middle on the disc, a second more conspicuous, a little posterior on the fold, two are in the middle (one on the fold, the other rather obliquely placed on the disc); a fifth is transversely placed beyond the middle rather above the fold; beyond are some *extremely faint indications* of a pale angulated fascia; cilia dark grey. Posterior wings pale greyish-fuscous, with greyish-fuscous cilia.

Occurs on moors in the north of England, in June, sitting on the black places that have been burnt.

46. **solutella** (F. v. R.), Zell. Isis, 1839. p. 199; Dup. ?—*fumo-sella*, Dougl. Alis anticis *saturatissime fuscis*, *punctis quatuor nigris*, primo plicæ prope basim, secundo plicæ, tertio disci paullo ante medium, quarto disci pone medium, fascia postica diluta angulata *obsoletissima*. Exp. al.  $9\frac{1}{3}$  lin.

Head, face, palpi, and antennæ dark fuscous. Anterior wings *very dark fuscous, with four black spots*; the first on the fold not far from the base, the second on the fold, and the third on the disc, a little before the middle, the fourth on the disc beyond the middle; there are hardly any indications of a pale angulated fascia; cilia pale ochreous, intersected by a dark fuscous line. Posterior wings pale grey, with greyish-ochreous cilia.

A single specimen was taken in 1851, by Mr. Weaver, in Perthshire; it is in Mr. Doubleday's collection.

47. **distinctella**, Zell. Isis, 1839, p. 199; F. v. R. pl. 80. f. 2; Dougl.; Dup. ? Alis anticis *fusco-brunneis*, *puncto obliquo costali prope basim*, macula costali pone medium, saturate fuscis (interdum obsoletis), puncto uno plicæ, altero posteriore disci, tertioque disci pone medium, *nigris albedo-notatis*, fascia postica *subangulata* dilutius *subobsoleta*. Exp. al.  $7\frac{1}{2}$  lin.

Head and face greyish-fuscous. Palpi greyish-fuscous, internally pale ochreous; the tip of the terminal joint pale ochreous. Antennæ fuscous. Anterior wings *dark brownish-fuscous, with an oblique dark fuscous blotch from near the base of the costa*, and a dark fuscous blotch on the costa beyond the middle (these markings are sometimes almost

lost in the dark ground-colour); on the fold is a black spot, and another, rather posterior, on the disc before the middle, a third is on the disc beyond the middle; *these spots are generally preceded and followed by some whitish scales*; towards the hinder margin is a *slightly angulated* paler but not very distinct fascia; on the hinder margin and apex of the costa are some scattered black scales, and *a few whitish scales lie towards the apex of the hinder margin*; cilia fuscous, intersected by a darker line. Posterior wings grey, with greyish-fuscous cilia.

Occurs on the downs beyond Croydon, among the junipers, in July and August; also in the Isle of Portland, but not common.

48. *celerella* (Dougl.), Sta. Sup. Cat. p. 5 (1851); Dougl. *Alis anticis fusco-griseis, stria obliqua costæ prope basin, macula magna triangulari in medio costæ inferius in plicam terminata, maculaque costæ subtransversali pone medium saturate fuscis, puncto uno plicæ, altero posteriore disci ante, tertioque disci pone medium nigris, albido-notatis, fascia tenui postica dilutiore fere recta.* Exp. al. 5-6½ lin.

Head and face greyish-fuscous. Palpi greyish-fuscous, internally pale ochreous; tip of the terminal joint pale ochreous. Antennæ fuscous. Anterior wings *greyish-fuscous, with a short oblique fuscous streak from the costa near the base, a large triangular fuscous blotch in the middle of the costa, terminating on the fold, and beyond the middle is a dark fuscous costal blotch, almost reaching across the wing*; a black spot lies on the fold, a second rather posterior on the disc before the middle, a third on the disc beyond the middle; *they are generally preceded and followed by some whitish scales*; towards the hinder margin are two pale opposite spots, *almost united into a slender straight fascia*; in the dark apex of the wing are a few whitish scales; cilia pale fuscous, intersected by a darker line. Posterior wings pale grey, with greyish-fuscous cilia.

A few specimens have been taken in September among the sand-hills of the Cheshire coast, by Mr. Cooke and Mr. Gregson.

49. *costella* (Step.), Hump. and West. B. M. ii. 192. pl. 107. f. 15 (1845); Dougl. *Alis anticis rufo-ochreis, apicem versus fusco-suffusis, macula magna costæ fere ex basi usque ad fusciam posticam producta, ante medium plicam tangente, postice angustata, nigra, fascia postica distincte angulata dilute rufo-ochrea.* Exp. al. 6½ lin.

Head dark greyish-ochreous. Face pale greyish-ochreous. Palpi reddish-fuscous, internally whitish; terminal joint pale ochreous, with two dark fuscous rings. Antennæ fuscous, with paler annulations. Anterior wings *reddish-ochreous, with a large black blotch on the costa, beginning not far from the base, and reaching to the hinder fascia, it is broadest before the middle, where it touches the fold, and is attenuated posteriorly*; the pale hinder fascia is distinctly angulated, reddish-ochreous; the apical portion of the wing is much suffused with fuscous; and the hinder margin and apex of the costa are alternately fuscous and reddish-ochreous; cilia fuscous. Posterior wings greyish-fuscous, with paler cilia.

Not uncommon in hedges where *Solanum Dulcamara* grows, in May, August, and September. The larva mines the leaves, and feeds in the berries and stems of the *Solanum*, in July and August.

50. **maculea**, Haw. L. B. 552 (1829).—*maculella*, Step.—*blan-della*, Dougl. Ent. Trans. ii. n. s. 77. pl. x. f. 2. Alis anticis *albidis fuscescente-suffusis*, apicem versus fusco-suffusis, atomis nigris prope basim, *macula oblonga nigra ante medium costæ, plicam fere tangente, postice producta*, punctis duobus disci, altero ante, altero pone medium nigris, fascia postica alba nonnihil angulata et dentata. Exp. al. 5½ lin.

Head, face, and palpi creamy-white. Antennæ whitish, annulated with dark fuscous. Anterior wings *whitish, somewhat suffused with pale fuscous*; a few black dots lie near the base, *an oblique black streak arises before the middle of the costa, reaches nearly to the fold, and is rather produced posteriorly*; above its apex is a small black spot on the disc, and beyond the middle is another small black spot on the disc; the pale hinder fascia is white, slightly angulated and indented; the apical portion of the wing is more suffused with fuscous, the hinder margin and apex of the costa are varied with black and white scales; cilia pale grey. Posterior wings pale grey, with greyish-fuscous cilia.

Not uncommon in July in hedges where *Stellaria holostea* grows. The larva, when young, mines the leaves, afterwards feeds in the terminal shoots, and at a later period feeds in the seeds of the *Stellaria holostea*; it may be met with in May and June.

51. **tricolorella**, Haw. Tr. Ent. i. 338 (1812); Step.—*contigua*, Haw.; Step.; Dougl. Ent. Trans. ii. n. s. 76. pl. x. f. 1. Alis anticis *dilute rufo-brunneis*, basi fusca, stria brevi costæ prope basim exalbida, *macula magna nigra costæ a stria usque ad fasciam posticam extensa*, plicam tangente postice angustata, *striam ad dorsum pone medium emit-tente*, *maculis posticis oppositis exalbidis, fasciam angulatam formantibus*, costali majore ac posteriore. Exp. al. 6 lin.

Head dark fuscous. Face greyish-ochreous. Palpi dark fuscous; internally, and the tip of the terminal joint, pale ochreous. Antennæ fuscous. Anterior wings rather *pale reddish-brown*, with the base fuscous; a short oblique streak from the costa near the base is yellowish-white; beyond this is *a large black costal blotch, which extends to the hinder fascia*, it reaches to the fold, but is posteriorly narrower, and *beyond the middle it emits a black streak to the inner margin*; the *yellowish-white opposite spots*, of which that on the costa is the larger and *posterior, form an angulated fascia*; the apical portion of the wing is black, the hinder margin and apex of the costa being alternately blackish and whitish; cilia dark fuscous, with the tips paler. Posterior wings greyish-fuscous, with paler cilia.

Not scarce in July in hedges where *Stellaria holostea* grows. The larva, when young, mines the leaves, afterwards feeding in

the terminal shoots, and devouring the flower-buds of the *Stellaria holostea*, in the beginning of spring.

52. **fraternella**, Dougl. Ent. Trans. i. n. s. 101 (1851); Id. Ent. Trans. ii. n. s. 77. pl. x. f. 3. Alis anticis *rufo-brunneis, fusco-suffusis, puncto supra plicam prope basim, nebula obliqua ante medium costæ plicam tangente, nebula pone medium dorsi* (apice cum puncto nigro disci connexo), *saturate fuscis*, maculis oppositis *albidis* fere fasciam *vix angulatam* formantibus, ca costali *vix* posteriore. Exp. al. 5-5½ lin.

Head reddish-brown. Face pale greyish-ochreous. Palpi fuscous, internally pale ochreous; terminal joint dark fuscous, internally and the tip pale ochreous. Antennæ dark fuscous, with paler annulations. Anterior wings *reddish-brown*, more or less *suffused with fuscous*, with a dark fuscous spot above the fold near the base, *a dark fuscous blotch from the costa before the middle, extending obliquely to the fold, and a dark fuscous blotch on the inner margin beyond the middle*, at the apex of which is a black spot on the disc; beyond are two *whitish* opposite spots, almost forming a *slightly angulated* fascia (that on the costa is *rather* posterior); the apical portion of the wing is almost entirely dark fuscous; cilia pale grey, varied with fuscous. Posterior wings pale grey, with greyish-fuscous cilia.

Not uncommon in July, in hedges and weedy banks where *Stellaria uliginosa* grows, but very retired in its habits, and not easily dislodged. The larva feeds in May in the young terminal shoots of *Stellaria uliginosa*, which thereby assume a singular knobbed and contorted appearance.

53. **maculiferella** (Mann), Dougl. Ent. Trans. i. n. s. 102 (1851).—*proxima*, Haw.; Stcp. Alis anticis *griseo-fuscis*, costam versus *rufo-brunneo suffusis, macula obliqua nigra ante medium costæ, plicam tangente, interne cum puncto nigro plicæ, externe cum puncto nigro disci connexa*, puncto disci pone medium cum striola transversali supra plicam connexo, *nigris, fascia postica dilute ochrea* interrupta subangulata. Exp. al. 5 lin.

Head dark fuscous. Face pale ochreous. Palpi dark fuscous, internally pale ochreous. Antennæ pale fuscous, annulated with dark fuscous. Anterior wings *greyish-fuscous*, somewhat suffused with reddish-brown towards the costa, *with a broad oblique black streak from the costa before the middle, not reaching beyond the fold, connected internally with a black spot on the fold, and externally with a black spot on the disc*; beyond the middle is a black spot on the disc, connected with a short transverse streak rather above the fold; *the pale ochreous hinder fascia is interrupted and slightly angulated*; beyond it the apex of the wing is dark fuscous; the hinder margin and apex of the costa being varied with dark fuscous, and pale ochreous; cilia grey. Posterior wings pale grey, with pale greyish-fuscous cilia.

Taken occasionally in July in weedy banks, but scarce.

54. **junctella**, Dougl. Ent. Tran s. i. n. s. 103 (1851). Alis anticis *albido-griseis*, apicem versus saturate fuscis, *costam versus rufo-brunneo-nebulosis*, *macula costali plicam tangente ante medium*, puncto disci pone medium *nigris*, *macula rufo-brunnea*, ante fasciam parum curvatam albidam. Exp. al.  $4\frac{1}{2}$  lin.

Head shining bronze. Face paler. Palpi dark fuscous, internally whitish. Antennæ whitish, annulated with dark fuscous. Anterior wings *whitish-grey*, towards the costa rather clouded with reddish-brown, with a black costal spot before the middle reaching to the fold, and a small black spot on the disc beyond the middle, followed by a reddish-brown blotch; beyond this is a *pale yellowish-white*, slightly curved fascia; the apical portion of the wing is almost entirely dark fuscous, nearly black; cilia grey. Posterior wings greyish-fuscous; cilia paler.

Has occurred in Epping and Hainault Forests, on the trunks of oaks, in August.

55. **vicinella**, Dougl. Ent. Trans. i. n. s. 102 (1851). Alis anticis *fuscis*, *maculis una prope basim*, altera *obliqua costali ante medium*, *tertia posteriore disci nigris*, *plaga magna sinuata dorsi (antice costam tangente)* albidam, *maculis posticis oppositis albidis*. Exp. al. 6 lin.

Head greyish-fuscous. Face pale ochreous. Palpi fuscous, internally pale ochreous; terminal joint dark fuscous. Antennæ dark fuscous, with paler annulations. Anterior wings *dark fuscous*, with a black spot near the base, *an oblique black blotch before the middle of the costa*, and a black blotch on the disc beyond the middle; on the inner margin is a *large yellowish-white blotch* extending from near the base to beyond the middle, at first it almost touches the costa (there appearing as a fascia), but beyond it is much indented with the dark ground-colour, but posteriorly it again widens and crosses the fold; towards the hinder margin are *two whitish opposite spots*, of which the costal spot is rather posterior; cilia pale fuscous. Posterior wings whitish-grey, with pale fuscous cilia.

Three specimens only have occurred; these were found at Belfast and Brighton, in August and September. In my own and Mr. Douglas's collections.

56. **Hübneri**, Haw. L. B. 551 (1829); Step.; Dougl. Alis anticis *albido-griseis*, dilute *roseo-suffusis*, *macula costæ basin versus*, cum *macula plicæ ante medium (fere striam obliquam formante)*, punctis duobus disci, altero ante, altero (cum *striola supra plicam connexo*), pone medium *nigris*; nebula costæ pone medium saturate fusca, fascia postica parum angulata et *dentata* albidam. Exp. al. 6 lin.

Head and face whitish-grey. Palpi pale fuscous, internally whitish; terminal joint dark fuscous, internally whitish. Antennæ whitish, with fuscous annulations. Anterior wings *whitish-grey*, with a *slight rosy tint*, with a black spot on the costa not far from the base, and obliquely beyond it a larger black spot on the fold (the two nearly forming an oblique striga); on the disc are two small black spots, one before, the

other beyond the middle, the latter is connected with a short transverse black streak above the fold; on the costa beyond the middle is a dark fuscous blotch, followed by a slightly angulated, rather indented whitish fascia; the hinder margin and apex of the costa are varied with whitish and black scales; cilia pale fuscous. Posterior wings grey, with greyish-fuscous cilia.

A scarce species; most of our specimens have been taken in the north of England, on the trunks of oaks in July and August.

57. **marmorea**, Haw. L. B. 553 (1829); Step.; Curt.; Dougl. — *Manniella*, Zell.? Alis anticis angustulis *rufo-brunneis*, *fusco-suffusis*, *dorso dilutiore*, punctis duobus albidis cum duobus aliis saturate fuscis alternantibus supra plicam, stria nigra disci in medio, *fascia postica fere recta, parum obliqua*, et interrupta *albida*. Exp. al.  $5\frac{1}{2}$  lin.

Head and face pale greyish-fuscous. Palpi dark fuscous, internally whitish. Antennæ fuscous. Anterior wings rather narrow, *reddish-brown, suffused with fuscous, the inner margin paler*, with two whitish spots above the fold, each preceded by a dark fuscous spot (the first not far from the base, the other in the middle of the wing); above the second is a black streak on the disc; towards the hinder margin is a *nearly straight, rather oblique*, slightly interrupted, *whitish fascia*; the hinder margin is dark fuscous; cilia greyish-ochreous, varied with fuscous. Posterior wings pale grey, with greyish-ochreous cilia.

Common on sandy coasts, amongst the short grass, from June to September.

58. **instabilella**, Dougl. Zool. 1270. f. 10 (1846). Alis anticis *rufo-ochreis*, *stria obliqua costæ ante medium fusca*, in plicam desinente, *punctis tribus plicæ, tribus disci saturate fuscis*, *fascia postica dilutiore angulata obsoleta*. Exp. al. 7 lin.

Head and face greyish-ochreous. Palpi pale ochreous, beneath fuscous. Antennæ pale fuscous, with darker annulations. Anterior wings *reddish-ochreous, with a short oblique fuscous streak from the costa before the middle, not reaching beyond the fold; on the fold are three black spots*, the space between the first and second is greater than that between the second and the third, which latter is in the middle of the wing; *on the disc are three dark fuscous spots*, the first a little beyond the second spot of the fold, the other two very near together beyond the middle; the pale angulated fascia is rather indistinct; beyond it the apical portion of the wing is clouded with fuscous; the hinder margin and apex of the costa are spotted with dark fuscous; cilia greyish-ochreous, varied with fuscous. Posterior wings whitish-grey, with ochreous-grey cilia.

Occurs on the coast in July and August; St. Osyth and Brighton. Mr. Douglas bred this species last autumn from larvæ he found at Brighton, in August, feeding on *Salicornia herbacea* and *Chenopodium maritimum*.

59. **Atriplicella**, F. v. R. 223. pl. 78 (1839); Dougl.; Dup.? Alis anticis *griseo-fuscis*, *stria obliqua saturatiore costæ ante medium*, *plicam tangente*, *punctis tribus plicæ*, *duobus disci saturate fuscis*, fascia postica *dilutior angulata subdistincta*. Exp. al. 7 lin.

Head and face greyish-fuscous. Palpi fuscous, internally pale ochreous. Antennæ fuscous. Anterior wings *greyish-fuscous*, with a *darker oblique streak from the costa* not far from the base, reaching to the fold; *along the fold are three dark fuscous spots*, and *on the disc are two others* obliquely above the second and third of the fold, the last being a little beyond the middle of the wing; the pale hinder fascia is not very distinct, it is angulated; the hinder margin and apex of the costa are varied with pale and dark fuscous; cilia pale fuscous. Posterior wings pale greyish-fuscous, with paler cilia.

Common in July and August, in many places, among *Atriplex* and *Chenopodium*. The larva feeds from May to July, on the leaves and flowers of those plants.

60. **obsoleteella**, F. v. R. 225. pl. 79 (1840); Dougl.; Dup.—*elongella*, W. V.? Hüb.? Alis anticis *dilute griseo-ochreis*, *fuscescente-suffusis*, puncto plicæ, punctoque uno posteriore disci ante medium, *punctis duobus disci pone medium*, *interdum connexis*, *fuscis*, fascia postica *dilutior angulata indistincta*. Exp. al. 6 lin.

Head and face pale greyish-ochreous. Palpi pale greyish-ochreous, with a dark fuscous ring before the apex of the terminal joint. Antennæ pale greyish-ochreous, annulated with dark fuscous. Anterior wings *pale greyish-ochreous*, more or less *clouded with pale fuscous*; on the fold before the middle is a fuscous spot; on the disc is another rather posterior, and *beyond the middle are two smaller fuscous spots on the disc* (the posterior being nearer the inner margin), and *in some specimens they are united*; the pale angulated fascia is rather indistinct; the hinder margin and apex of the costa are spotted with pale fuscous; cilia pale ochreous. Posterior wings whitish, with pale ochreous cilia.

Abundant in the Isle of Portland in August, among *Chenopodium maritimum*. The larva (according to Fischer) feeds from May to August in the stems of *Atriplex* and *Chenopodium*.

61. **littorella**, Dougl. Ent. Trans. i. n. s. 67 (1850). Alis anticis *albidis*, *leviter fusco-suffusis*, *linea plicæ lineaque disci pone medium lutescentibus*, *utraq[ue] punctis duobus nigris notata*, basi costæ, punctoque prope costam ante medium fuscis. Exp. al.  $5\frac{1}{2}$  lin.

Head and face whitish-grey. Palpi pale grey; terminal joint darker. Antennæ whitish, annulated with fuscous. Anterior wings *whitish*, *slightly suffused with pale fuscous*, with a *yellowish streak on the fold*, and *one on the disc beyond the middle*; *on each of these streaks are two black spots*; the base of the costa is fuscous, and a fuscous spot lies not far from the costa before the middle of the wing; cilia yellowish-white. Posterior wings greyish-white, with yellowish cilia.

Taken by Mr. Stevens, in May, on the coast of the Isle of Wight.

62. **sequax**, Haw. J. B. 552 (1829); Step.; Dougl.—*apicistrigella*, Dup.? Alis anticis fuscis, fascia obliqua ante medium ad dorsum dilatata (introrsum costam versus nigro-squamata), fasciæque postica obsoleta dilute griseis, punctis duobus disci in medio, punctis duobus ante fasciam posticam (altero dorsum versus, altero transversali disci), lineolaque apicis nigris. Exp. al. 6 lin.

Head and face whitish-grey. Palpi whitish; terminal joint with two black rings. Antennæ whitish, annulated with dark fuscous. Anterior wings fuscous, with an oblique pale grey fascia before the middle, broadest on the inner margin, internally with some black scales from the costa to the fold; towards the hinder margin is a rather indistinct straight pale grey fascia; on the disc in the middle are two small black spots, two other black spots (one near the inner margin, the other transversely placed on the disc) precede the hinder fascia; towards the apex is a short black streak; cilia greyish-fuscous. Posterior wings pale grey, with paler cilia.

Occurs at Sanderstead and Arthur's Seat, in July and August, among *Helianthemum vulgare*. The larva (first observed by Mr. Logan) feeds in the terminal shoots of that plant in May and June.

63. **aleella**, Fab. E. S. iii. 2. 317. 136 (1794); Zell.—*alternella*, Hüb.; Step.—*alterna*, Haw.—*bicolorella*, Treit.; Dup. xi. pl. 298. f. 4. Alis anticis niveis, fascia obliqua ante medium, maculis quatuor (duabus costæ, tertia dorsi, quarta apicalis), punctis disci, marginisque postici nigris. Exp. al. 6 lin.

Head and face white. Palpi white; terminal joint with two black rings. Antennæ whitish, annulated with black. Anterior wings snowy-white, with black markings; viz. a slight interrupted striga very near the base, an oblique fascia a little beyond, a triangular spot on the costa before the middle, a small round spot opposite to it on the fold, a spot on the costa beyond the middle, a nearly triangular spot opposite to it on the inner margin (between them is a small spot on the disc), a large spot towards the apex of the wing, and several small spots along the hinder margin; cilia grey. Posterior wings grey, with paler cilia.

Occurs on the trunks of oaks in May and June, at West Wickham Wood; not common. It is easily seen from a distance, from the strong contrast of the black markings on a white ground.

64. **leucatella**, Linn. F. S. 1444 (1761); Fab.; Hüb. Tin. 146; Treit.; Step.; Zell.; Dup.?—*leuceateæ*, Haw.—*albocingulella*, Dup. Alis anticis nigricantibus, punctis scabris atris, fascia lata obliqua ante medium, maculisque duabus posticis oppositis albis. Exp. al. 6½ lin.

Head and face white. Palpi white; terminal joint with two pale fuscous rings. Antennæ black, with whitish annulations. Anterior



wings blackish, with a broad rather oblique white fascia before the middle, narrower towards the costa, and with two opposite white spots (of which that on the inner margin is the larger and slightly posterior) towards the hinder margin; on the fold on each side of the fascia is a raised deep black spot, and a third is a little above the fold beyond the middle; on the hinder margin and apex of the costa are some minute black spots; cilia dark fuscous. Posterior wings grey, with paler cilia.

Frequents hawthorn hedges in June and July. The larva (according to Lienig) feeds in May between united apple-leaves, in a felted mass, which bears a resemblance to moss.

65. **albiceps**, Zell. Isis, 1839. p. 202.—*nana*, Haw.—*aleella*, Step. Alis anticis griseo-nigris, puncto costæ basali albido, fascia obliqua ante medium, in medio attenuata, in dorsum valde dilatata, macula in medio costæ, maculisque posticis oppositis per lineam in fasciam angulatam connexis albis. Exp. al. 5–5½ lin.

Head and face white. Palpi white; terminal joint with two black rings. Antennæ white, annulated with black. Anterior wings greyish-black, with a small whitish spot at the base of the costa, an oblique white fascia before the middle, extremely attenuated on the fold, but much expanded on the inner margin; on the middle of the costa is a white spot; and beyond are two opposite white spots, connected by a slender line, so as to form an angulated fascia; beyond this is an irregular black spot; several black spots are on the disc, but indistinct from the deep ground-colour; cilia whitish, with some fuscous lines. Posterior wings grey, with greyish-fuscous cilia.

Occurs, not uncommonly, on fences round orchards in August.

66. **nanella**, Hüb. Tin. 267 (1812); Zell.; Dup.; W. V.?—*nana*, var. β. Haw. Alis anticis griseis, fusco-pulveratis, fascia obliqua prope basim, maculis duabus costæ (altera ante, altera pone medium), lineis duabus posticis longitudinalibus disci, punctisque rotundis plicam versus, fere connexis, saturate fuscis. Exp. al. 5½ lin.

Head and face white, mixed with grey. Palpi white; terminal joint with two dark fuscous rings. Antennæ white, annulated with black. Anterior wings greyish, powdered with fuscous, with several dark fuscous markings, viz. an oblique fascia arising on the costa near the base, a small spot on the costa before the middle, and a smaller spot on the costa beyond the middle; on the disc is a short longitudinal streak, nearly in the middle, and another follows beyond the middle, two small round spots lie immediately below these streaks; the hinder margin is dark fuscous; cilia whitish, with some fuscous lines. Posterior wings pale grey, with paler greyish-fuscous cilia.

Not uncommon in orchards in July. The larva (detected by Mr. Wing) feeds in May on the pear, making a gallery across the flowers, with pieces of the petals and stamens interwoven with silk.

67. **Mouffetella**, W. V. 140. 57 (1776); Hüb. Tin. 245; Treit.; Step.; Dougl.; Linn.? Fab.?—*punctifera*, Haw. Alis anticis *rufescente-cinereis*, *punctis duobus conspicuis ante medium* (altero plicæ, altero posteriore disci), *punctisque duobus approximatis oblique positis*, disci, *pone medium* nigris, fascia postica dilutior angulata valde indistincta. Exp. al. 8 lin.

Head and face pale grey. Palpi grey, beneath darker; terminal joint paler, with a broad fuscous ring before the apex. Antennæ pale grey, with fuscous annulations. Anterior wings *pale ashy-grey, with a slight reddish tinge*, with some indistinct black spots towards the base, along the fold and along the subcostal vein; *nearly in the middle of the wing are two conspicuous black spots*, one on the fold, the other, rather posterior, on the disc; *beyond the middle are two other conspicuous black spots, nearer together, but more obliquely placed*; beyond them may sometimes be seen faint indications of a pale angulated fascia; some small black spots are on the hinder margin and apex of the costa; cilia greyish-fuscous. Posterior wings grey, with greyish-fuscous cilia.

Occurs in hedges among honeysuckle in June and July, but not frequently met with. The larva feeds in May, between united leaves of the honeysuckle, forming a white silken web, which fits tightly to its body.

68. **dodecella**, Linn. S. N. (10) 539. 274 (1758); De Geer; Fab.; Zell.; Dougl.—*annulicornis*, Step.—*favillatella*, Zell.—*Reussella*, Ratz. Alis anticis *griseis*, fasciis quatuor nebulosis saturationibus, *punctis scabris tribus plicæ majoribus, tribus disci minoribus nigris*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face grey. Palpi grey; terminal joint with two darker fuscous rings. Antennæ grey, annulated with dark fuscous. Anterior wings grey, with four darker cloudy fasciæ (one at the base, one before, another beyond the middle, and the fourth towards the hinder margin); *along the fold are three distinct raised black spots, and on the disc above them are three others*, less sharply defined; between the third and fourth cloudy dark fascia the ground-colour appears as a pale angulated fascia; on the hinder margin and apex of the costa are some short black streaks; cilia grey. Posterior wings greyish-fuscous, with paler cilia.

Very common among Scotch firs (*Pinus sylvestris*) in June and July. The larva feeds in May in the terminal shoots of those trees.

69. **triparella**, Zell. Isis, 1839. p. 200; Dup.?—*dodecea*, Haw.—*dodecella*, Step. Alis anticis *sordide ochreis*, apice fusco-nebulosis, *nebulis tribus costæ fuscis, punctis sex disci per paria obliqua dispositis nigris*, fascia postica dilutior angulata. Exp. al.  $6\frac{1}{2}$  lin.

Head and face greyish-ochreous. Palpi greyish-ochreous; terminal joint paler, with two black rings. Antennæ ochreous, annulated with dark fuscous. Anterior wings *dingy-ochreous*, the costa with three cloudy

fuscous spots (one at the base, the second in the middle, the third beyond the middle); *along the disc are three pairs of black spots* (the first not far from the base, the second in the middle, and the third pair beyond the middle); in each pair the lower spot is posterior to the upper spot; beyond them is a faint angulated pale fascia; the apical portion of the wing is rather suffused with fuscous, with some dark fuscous spots round the margin; cilia pale ochreous. Posterior wings pale grey, with greyish-ochreous cilia.

Not scarce among oaks in May and June. The larva feeds in August and September between united oak-leaves, fastening them by several strong silken cables.

70. **tenebrella**, Hüb. Tin. 434 (1816); Treit.; Dup.; Zell.; Dougl.—*subcuprella*, Step.—*unicolorella*, Dup. Alis anticis *viridicæneis*, *purpureo-tinctis*, antennis *unicoloribus fuscis*. Exp. al.  $5\frac{1}{2}$  lin.

Head and face bronzy, with a purplish tint. Palpi bronzy. Antennæ unannulated, *unicolorous fuscous*. Anterior wings *unicolorous bronzy-green*, with more or less of a *purple tint*; cilia fuscous. Posterior wings greyish, with paler cilia.

Common on dry gravelly and sandy banks in many places, in June.

71. **tenebrosella** (F. v. R.), Zell. Isis, 1839. p. 201; Dougl. Alis anticis *viridicæneis*, *purpureo-tinctis*, antennis *fuscis apice albo*. Exp. al. 5 lin.

Head shining bronzy, with a slight purplish tint. Face and palpi bronzy. Antennæ *dark fuscous*, unannulated, *with the tip white*. Anterior wings *unicolorous shining bronzy-green*, with a *purple tint*; cilia fuscous. Posterior wings pale grey, with greyish cilia.

Less common than *tenebrella*, but frequenting the same localities in June and July.

72. **ligulella**, Zell. Isis, 1839, p. 201; Dougl.; W. V. ?—*cinctella*, Linn. ?—*vorticella*, Scop. ? Treit. ? Dup. ?—*albistrigella*, Step. Alis anticis *nigris*, basin versus *vix* *dilutioribus*, fascia *tenui vix obliqua alba* pone medium, *subtus præter maculam costæ minutam evanescente*. Exp. al. 6 lin.

Head dark fuscous. Face greyish-fuscous. Palpi pale yellowish; terminal joint dark fuscous, with a whitish line on each side. Antennæ white, annulated with dark fuscous. Anterior wings black, towards the base *hardly* paler, with a *slender white fascia* beyond the middle, placed rather obliquely, being nearer the base on the inner margin; cilia blackish. Posterior wings grey, with greyish-fuscous cilia. *On the underside the fascia of the anterior wings only appears as a small spot on the costa*.

Not uncommon in flowery meadows in June and July. The larva (according to Tischer) feeds between united leaves of *Lotus corniculatus* in May.

73. **vorticella**, Zell. Isis, 1839. p. 201; Dougl. Alis anticis nigris, basim versus *vix* dilutioribus, fascia fere recta, alba pone medium sublus præter maculam costæ minutam evanescente. Exp. al.  $5\frac{1}{2}$  lin.

Head dark fuscous. Face grey. Palpi pale yellowish; terminal joint fuscous, with a white line on each side. Antennæ whitish, annulated with dark fuscous. Anterior wings black, towards the base *hardly* paler, with a *nearly straight* white fascia beyond the middle, broader on the costa than on the inner margin; cilia blackish. Posterior wings greyish-fuscous, with paler cilia. *On the underside, the fascia of the anterior wings only appears as a small spot on the costa.*

Taken near Pembury by Mr. Weir, and near Epping by Mr. Doubleday, in June. The larva (according to Zeller) feeds in May on *Genista tinctoria*.

74. **tæniolella** (Treit.), Zell. Isis, 1839. p. 201; Dougl.—*cinctella*, Step. ? Alis anticis nigris, basim versus dilutioribus, fascia fere recta alba pone medium, *subtus distincta et in maculam albidam alarum posticarum continuata*. Exp. al.  $5\frac{1}{2}$  lin.

Head dark fuscous. Face greyish-fuscous. Palpi pale yellowish; terminal joint dark fuscous, with a whitish line on each side. Antennæ white, annulated with dark fuscous. Anterior wings black, towards the base *rather paler*, with a nearly straight whitish fascia beyond the middle, of variable breadth; cilia blackish. Posterior wings dark greyish-fuscous, with paler cilia. *On the underside, the fascia of the anterior wings is distinct throughout, and is continued as a whitish spot on the posterior wings.*

Commoner than either of the preceding in chalky places; occurs at Sanderstead and Mickleham, in July.

75. **Sircomella**, n. sp. Alis anticis *nigricantibus, postice atris, puncto atro plicæ ante medium*; antennis in dorso toto-fuscis, infra albo-punctatis. Exp. al.  $4\frac{1}{3}$  lin.

Head and face dark grey. Palpi fuscous, internally ashy. Antennæ entirely fuscous above, beneath spotted with white. Anterior wings dark greyish-fuscous, *posteriorly shading into black, with a black spot on the fold before the middle of the wing*; cilia dark fuscous. Posterior wings greyish-fuscous, with paler cilia.

Two specimens in Mr. Vaughan's collection, taken near Bristol, in June. The first was taken by Mr. Sircom (who considered it as a singular variety of *tæniolella*).

76. **immaculatella**, Dougl. Ent. Trans. i. n. s. 67 (1850). Alis anticis *nitidis, fusco-nigris, puncto obsolete plicæ, punctoque posteriore disci saturatioribus*. Exp. al. 5 lin.

Head and face greyish-brown. Palpi grey; terminal joint fuscous. Antennæ unannulated fuscous. Anterior wings *shining unicolorous fuscous-black* ("with a violet tinge when alive," Dougl. MS.), *with a minute nearly obsolete dark spot on the middle of the fold, and another*

*posterior to it on the disc*; cilia rather paler. Posterior wings whitish-grey, with yellowish-grey cilia.

Unique in Mr. Douglas's collection; taken at West Wickham wood in August, 1849.

77. **nigritella**, Zell. Isis, 1847. p. 857; Dougl. Alis anticis *angustulis fusco-nigris, maculis posticis oppositis obsolete lutescentibus*, costali obliqua ac posteriore, puncto in medio plicæ minutissimo lutescente; *antennis fuscis, non annulatis*. Exp. al. 6 lin.

Head dark fuscous. Face grey. Palpi grey; terminal joint black. *Antennæ unicolorous fuscous*. Anterior wings *rather narrow, blackish, with two very faint yellowish opposite spots beyond the middle*, of which that on the costa is decidedly posterior and rather oblique; about the centre of the fold is a very minute linear yellowish dot; cilia greyish-fuscous. Posterior wings pale grey, with pale fuscous cilia.

A specimen, of the capture of which there is no record, is in Mr. Douglas's collection.

78. **Coronillella** (Tischer), Treit. E. S. ix. 2. 87. 1833; Dup.; Dougl. Alis anticis *fusco-nigris, postice nigris, maculis posticis parvis oppositis costali majore vix posteriore albidis; antennis albidis fusco-annulatis*. Exp. al.  $5\frac{1}{2}$  lin.

Head dark fuscous. Face pale grey. Palpi grey; terminal joint dark fuscous, with a white line on each side. *Antennæ whitish, annulated with black*. Anterior wings fuscous-black, posteriorly darker; beyond the middle are two small *whitish opposite spots*, of which that on the costa is the larger and *slightly posterior*; cilia fuscous. Posterior wings *unusually broad*, greyish-fuscous, with paler cilia.

Not common; occurs at Mickleham in June and July. The larva (according to Tischer) feeds between united leaves of *Coronilla varia*.

79. **Anthyllidella**, Hüb. Tin. 330 (1816); Zell.; Dup.; Dougl. Alis anticis *nigris, puncto minuto, interdum obsoleto, in medio plicæ, punctis posticis oppositis (costali majore ac posteriore) lutescentibus*; *antennis in dorso toto-fuscis, infra albo-punctatis*. Exp. al.  $5\frac{1}{2}$  lin.

Head dark fuscous. Face grey. Palpi grey; terminal joint dark fuscous, with a white line on each side. *Antennæ entirely fuscous above, beneath spotted with whitish*; the basal joint beneath with a white streak. Anterior wings *black, with a minute yellow spot on the middle of the fold* (frequently almost obsolete), and beyond the middle are two yellow opposite spots, that on the inner margin being very indistinct, that on the costa larger and *rather posterior*; cilia dark fuscous. Posterior wings grey, with greyish-fuscous cilia.

Common in May and August among several papilionaceous plants. The larva feeds in April and July in a turned-down leaf, which it eats half through. I have found it on *Onobrychis*, *Anthyllis*, and purple clover.

80. **atrella**, Haw. L. B. 567 (1829); Dougl.; Schr. ? Alis anticis *nitidis*, saturate fuscis, *maculis posticis oppositis* (costali posteriore) *luteis*; antennis fuscis obsolete dilutius annulatis. Exp. al. 5-5½ lin.

Head dark fuscous. Face pale grey. Palpi yellowish. Antennæ fuscous, with hardly perceptible paler annulations. Anterior wings *shining*, dark fuscous, *with two yellowish spots beyond the middle*, one on the inner margin at the anal angle, the other beyond it on the costa; cilia fuscous. Posterior wings pale grey, with greyish-ochreous cilia.

Occurs in various localities in July; generally among furze-bushes.

81. **bifractella** (Mann), Dougl. Ent. Trans. i. n. s. 66 (1850). Alis anticis *late brunneis*, macula dorsali prope basim, *striola plicæ mediae, fasciæque postica valde dentata, aurantiis*, punctis duobus in striola plicæ saturate fuscis; *capite, fronte, palpisque aurantiis*. Exp. al. 4½-5½ lin.

*Head, face, and palpi orange.* Antennæ fuscous, with hardly perceptible paler annulations. Anterior wings *brown*, with a spot on the inner margin near the base, *a streak in the middle of the fold*, and a *much indented fascia* towards the hinder margin *orange*; in the streak on the fold are two minute dark fuscous spots; cilia greyish-brown. Posterior wings fuscous, with paler cilia.

Not scarce in July and August among *Inula dysenterica* and *Conyza squarrosa*. The larva feeds during the winter in the seeds of those plants, agglomerating them by some glutinous secretion, and preventing them from falling.

82. **suffusella**, Dougl. Ent. Trans. i. n. s. 64 (1850). Alis anticis *albido-ochreis*, *postice saturatioribus*, *puncto minuto costæ pone medium, punctoque posteriore disci, subelevatis nigris*. Exp. al. 6 lin.

Head and face whitish. Palpi whitish; terminal joint with a dark fuscous ring before the apex. Antennæ whitish, annulated with fuscous. Anterior wings *whitish-ochreous, posteriorly darker, with a small black spot on the costa* at the commencement of the cilia, and *one rather posterior to it on the disc (both, but particularly the costal spot, slightly raised)*; cilia whitish-ochreous. Posterior wings greyish-white, with pale ochreous cilia.

Occurs in the Cambridgeshire fens in June.

83. **lucidella**, Step. II. iv. 221 (1834); Curt.; Dougl. Alis anticis *ochreis, præter spatium oblongum supra angulum analem, brunneo-suffusis*, puncto postico saturate fusco. Exp. al. 6½ lin.

Head and face brown. Palpi ochreous; terminal joint fuscous. Antennæ fuscous, with hardly perceptible pale annulations. Anterior wings *dark ochreous, suffused, with the exception of an oblong patch above the anal angle, with brown*; at the hinder end of this oblong patch is a dark fuscous or black spot; cilia varied ochreous and brown, at the anal angle greyish-ochreous. Posterior wings grey, with paler cilia.

Appears in July, frequenting wet places, such as the Hammer-smith marshes.

84. **lutulentella**, Zell. Isis, 1839. p. 201; Dougl. Alis anticis *unicoloribus ochreo-brunneis, puncto postico disci fusco*. Exp. al. 8 lin.

Head, face, and palpi ochreous-brown. Antennæ fuscous, with hardly perceptible paler annulations. Anterior wings *unicolorous ochreous-brown, with a small fuscous spot on the disc above the anal angle*; cilia brownish-ochreous. Posterior wings whitish, with dark ochreous cilia.

Three specimens have occurred; one I took at Ham Common, and another at Dartford Heath, in July; Mr. A. Hill met with one near Bristol.

85. **cerealella**, Oliv. Encycl. Method. Ent. i. p. 121 (1789); Lam.; Dup.; Dougl. Alis anticis *angustis acuminatis, obscure ochreis, postice saturatioribus, punctis nonnullis indistinctis plicæ fuscis*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face whitish. Palpi pale yellowish; terminal joint with a fuscous ring before the apex. Antennæ whitish, annulated with fuscous. Anterior wings *narrow, pointed, dull ochreous, posteriorly a little darker*, with some indistinct fuscous spots on the fold; cilia ochreous. Posterior wings grey, with greyish-ochreous cilia.

Several specimens were bred last summer by Mr. Scott; previously the insect had been extremely rare with us. The larva (according to Réaumur) feeds in winter in the interior of grains of barley and wheat, preferring the former, and, forming its cocoon within the grain, there assumes the pupa state.

86. **nigricostella** (F. v. R.), Dup. L. F. Sup. iv. 288. pl. 74. f. 9 (1842); Dougl. Alis anticis *angustulis luteis, plica et disco aurantio-suffusis, costa usque pone medium, apice, plagis duabus dorsi (altera ante medium, altera ad angulum analem) saturate fuscis, punctis tribus (primo prope basin, secundo medio prope costam, tertio posteriore prope dorsum) nigris*. Exp. al. 5 lin.

Head and face yellowish. Palpi yellowish; terminal joint with two black rings. Antennæ yellowish, annulated with dark fuscous. Anterior wings rather narrow, *yellow, tinged with orange along the fold and on the disc; the costa to beyond the middle, the apex, and two spots on the inner margin (one before the middle, the other at the anal angle) are dark fuscous*; near the base is a small black spot, a second lies near the middle of the costa, and a third above the anal angle; cilia yellowish. Posterior wings pale grey, with yellowish cilia.

Taken by Mr. E. Shepherd, at Wicken Fen, Cambridgeshire, at the end of June.

87. **gemmella**, Linn. F. S. 1388 (1761); Id. S. N.?—*nivea*, Haw.—*nivella*, Step.—*nigrovittella*, Dup. L. F. xi. pl. 298. f. 5.—*lepidella*,

Zell. Alis anticis *albidis, fusco-variegatis*, maculis tribus parvis costæ, quatuor dorsi fuscis, *macula tertia dorsi saturatiore, sæpe cum tertia costæ in fasciam connexa*. Exp. al.  $5\frac{1}{2}$  lin.

Head and face white. Palpi white; terminal joint with two black rings. Antennæ white, annulated with black. Anterior wings *whitish, with numerous irregularly-formed fuscous spots*, of which three are on the costa (one at the base, one before, and the other beyond the middle), and four are on the inner margin (one at the base, very small, a second before the middle, *a third darker in the middle, reaching more than half across the wing, and frequently uniting with the third costal spot to form an oblique fascia*, the fourth is at the anal angle); cilia white, with some dark fuscous lines. Posterior wings grey, with greyish-ochreous cilia.

Occasionally met with in mixed hedges in July and August, but not common.

It is doubtful whether the *gemmella* of the 'Systema Natura' be identical with that of the 'Fauna Succica,' and as the "*Habitat intra Quercus folia subcutanea*" appears in the former, from which it is copied, with the Diagnosis, in the 'Fauna Succica,' it may be that the larva of this species does not mine in oak-leaves. The inference to be drawn from the specimen and *pupa-skin* in the Linnean Cabinet, is that Linnæus was acquainted with the *habitat* of the larva.

88. *næviferella* (Zell.), Dup. L. F. Sup. iv. 455. pl. 85. f. 4 (1842); Dougl.—*Knockella*, Haw.? Step.?—*miscella*, Haw.? Alis anticis nigricantibus, fascia media obscura saturatiore, puncto plicæ pone medium, triangulo parvo dorsi ad angulum analem, trianguloque costæ posteriore aurcis. Exp. al.  $4-4\frac{1}{2}$  lin.

Head and face bronzy-grey. Palpi dark fuscous. Antennæ fuscous, with hardly perceptible paler annulations. Anterior wings shining dark bronzy-grey, inclining to black, with three small golden-yellow spots (one on the fold beyond the middle, one rather triangular at the anal angle, and a larger triangular spot posterior to it on the costa; below this latter a very small golden-yellow spot is sometimes perceptible); cilia bronzy-grey, with the tips paler. Posterior wings grey, with paler cilia.

Not uncommon in waste places where *Atriplex* and *Chenopodium* grow, appearing in May and August; fine specimens are rarely met with in the perfect state. The larva mines, in June and October, in the leaves of the *Atriplex* and *Chenopodium*, preferring those growing in sheltered places; hence it is very partial to those plants growing in stubble-fields, where, before the corn was cut, it was completely sheltered; the places mined by it become *white*.

89. *Hermannella*, Fab. S. I. ii. 509 (1781); Treit.; Dup.;



Zell.—*Schæfferella*, Don. ; Step. ; Fab. ?—*Zinckeella*, Hüb. Tin. f. 401, 402 ; Step. ? Alis anticis rufo-aurantiis, basi et margine postico nigris, fascia ante medium, utrinque nigro-marginata, striisque tribus posticis longitudinalibus argenteis. Exp. al. 4–4½ lin.

Head and face bronzy-grey. Palpi yellow ; tip of the terminal joint fuscous. Antennæ fuscous. Anterior wings reddish-orange, with the base black ; a short oblique streak on the costa near the base, and a small spot near the inner margin are silvery ; before the middle is an oblique silvery fascia, slightly margined with black ; beyond the middle are three short longitudinal silvery streaks (one on the fold, one on the disc, and one on the costa) ; on the costa before the apex is a short oblique silvery streak, and some silvery scales are perceptible at the anal angle and along the hinder margin, the remainder of the hinder margin being black ; cilia dark fuscous. Posterior wings greyish-violet, with paler cilia.

Found at the same times and in the same places as the last. The larva likewise mines the leaves of the same plant, but the mined place is *dirty greenish*, with a mottled appearance. (The assertion that this larva afterwards constructs a case of the blossom, in the 'Entomologists' Companion,' pp. 63 and 66, is incorrect.)

90. **pictella**, Zell. Isis, 1839. p. 202 ; Dougl. Alis anticis nitidis, saturate brunneis, strigulis duabus obliquis costæ, fascia postica, punctisque marginis postici argenteis ; capite palpisque albis ; *antennis fuscis, apice albo*. Exp. al. 5 lin.

Head, face, and palpi whitish. Antennæ *fuscous*, with paler annulations, *the tip entirely white*. Anterior wings shining dark brown, with two oblique silvery streaks from the costa, not reaching beyond the fold, an oblique silvery fascia towards the apex, and some silvery spots along the hinder margin ; cilia fuscous. Posterior wings whitish, with greyish cilia.

This pretty species appears in May and August ; it has been met with at Southend (in Essex), and on Barnes Common.

91. **Brizella** (Tischer), Treit. E. S. ix. 2. 173 (1833) ; Dup. L. F. xi. pl. 306. f. 5 ; Dougl. Alis anticis flavidis, costam et marginem posticum versus brunnescens, strigis quatuor angulatis ante dorsum evanescentibus argenteis, punctis duobus disci nigris. Exp. al. 5½ lin.

Head and face ochreous, mixed with brownish. Palpi pale ochreous ; second joint with two black rings ; the third with the base and two rings black. Antennæ whitish, annulated with dark fuscous. Anterior wings yellowish-grey, with the costa and hinder margin brownish ; on the costa are four silvery streaks sloping obliquely outwards, and nearly meeting some silvery scales on the inner margin, with which they would form angulated strigæ ; a black spot lies in the middle of the fold, and another is on the disc beyond the middle, a smaller one is sometimes

perceptible on the inner margin at the end of the fold; in the dark hinder margin and apex of the costa are several silvery streaks; cilia pale greyish-fusca, intersected by two dark fuscous lines. Posterior wings greyish-fusca, with paler cilia.

Appears in (May? and) August; occurs on the coast among *Statice Armeria* at Southend and Brighton. The larva feeding in autumn in the stems beneath the flower-heads of the *Statice*.

92. **ericinella**, Dup. L. F. xi. 497. pl. 306. f. 1, 2 (1838); Zell. —*micella*, Hüb.; Treit. Alis anticis rufis, costa fusca, strigula costæ basali, strigis duabus obliquis secunda cum striga recta ad dorsum connexa viridi-argenteis, maculis posticis oppositis (costali distinctiore) punctis marginis postici luteo-argenteis. Exp. al. 6 lin.

Head and face grey. Palpi fuscous; terminal joint yellowish, with two brown rings. Antennæ yellowish, annulated with fuscous. Anterior wings reddish-brown, darker towards the costa, with a short streak at the base of the costa, and two oblique strigæ (the second meeting a straight one on the inner margin) silvery-green; before the apex are two silvery yellow opposite spots which nearly meet (that on the costa is the more distinct); along the hinder margin are several small spots silvery-yellow; cilia fuscous. Posterior wings grey, with paler cilia.

Abundant on heaths in the south of England, in July. The larva must feed on heath in June, Mr. Douglas having bred the insect from a bunch of blooming heath he had gathered.

93. **paupella**, Zell. Isis, 1847. p. 858; Dougl. Alis anticis albis, stria prope costam, striaque plicæ a basi fere usque ad medium luteis, stria disci pone medium, stria postica externe fusco-marginata luteis. Exp. al. 5½ lin.

Head, face, and palpi whitish. Antennæ whitish, annulated with fuscous. Anterior wings white, with a fine yellow streak from the base near the costa, and a second from the base along the fold, neither of these reaches the middle of the wing; a third yellow streak lies on the disc beyond the middle, and a fourth externally with some fuscous scales lies near the hinder margin; cilia whitish, with some fuscous scales round the apex of the wing. Posterior wings pale grey, with yellowish-grey cilia.

A single specimen in Mr. Douglas's collection, taken by him at Folkstone, in July.

94. **inopella**, Zell. Isis, 1839. p. 201; Dougl. —*Inulella*, Curt. Alis anticis albidis, lincis disci, strigulaque obliqua ante apicem ochraceis. Exp. al. 4½–5 lin.

Head, face, and palpi whitish. Antennæ whitish, annulated with fuscous. Anterior wings whitish, with several fine streaks on the disc, and a broader transverse one before the apex dirty ochreous; cilia whitish, with a dark fuscous line. Posterior wings pale grey, with greyish-ochreous cilia.

A scarce species; appears in June and July among *Inula dysenterica*; has occurred at Folkstone and near Bristol. Several specimens have been bred from the flower-heads of the *Inula*, gathered during the winter.

95. **subocellea**, Step. II. iv. 214 (1834); Dougl.—*internella*, Lieutg. Alis anticis albis, dorso fusco, costa apicemque fusco-nebulosis, maculis duabus longis prope angulum analem, lineisque oppositis obliquis ante apicem saturate fuscis, *puncto apicis subocellato nigro*. Exp. al.  $5-5\frac{1}{2}$  lin.

Head and face white. Palpi white, beneath fuscous. Antennæ fuscous. Anterior wings white, with the inner margin fuscous, and the costa and apex of the wing more or less clouded with fuscous; near the anal angle are two elongate dark fuscous spots, and before the apex are two oblique opposite dark fuscous lines; *at the extreme apex is a black spot, followed by two dark lines in the whitish cilia*. Posterior wings pale grey, with greyish-ochreous cilia.

Common among marjoram (*Origanum vulgare*) in July. The singular larva was first detected by Mr. Jordan, in August, feeding on the flowers of the *Origanum*, and constructing a case of the blossom, hence very difficult to distinguish from the blossoms when in its young state; as it increases in size, it enlarges its case by the addition of other flowers, till by the middle of winter its case will be found to consist of four or five flowers, inserted one in another; it is then easily detected on the dry flower-heads by those who have had a little practice. The case has not the complete finish of a *Colcophora* case.

How many similar instances of wonderful contrivance, to ensure concealment, may yet remain undiscovered!

## Genus IX. **PARASIA.**

PARASIA, Dup. Cat. 350 (1844). *Recurvaria* p., Haw. *Cleodora* p., Step. *Gelechia* p., Zell.

Capilli depressi. Ocelli nulli. Antennæ articulis confertis, vix denticulatis. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales mediocres, reflexi, articulo secundo longo *squamis appressis, tertio brevi squamis appressis, ipso apice levi acuminato*. Alæ anteriores elongatæ, posteriores trapezoidales ante apicem *profunde emarginatæ*, longe ciliatæ; anteriores: vena apicalis *trifida*, infra eam venæ *quatuor* e cellula discoidali; posteriores: vena apicalis simplex *in apicem exit*, infra eam venæ duæ e venula transversa, cellula costalis *ante medium desinente*.

Head smooth. Ocelli none. Antennæ with the joints thickly set,

hardly denticulate. Tongue of moderate length, clothed with scales. Maxillary palpi very short. Labial palpi of moderate length, reflexed; the second joint long, *with appressed scales*; the third joint short, *with appressed scales, the extreme apex only being smooth and pointed*. Anterior wings elongate; posterior wings trapezoidal, *deeply emarginate below the apex, with long cilia*. In the anterior wings the apical vein is *trifid*, two branches running into the costa and one into the hinder margin, below it are *four* veins from the discoidal cell. In the posterior wings the simple apical vein terminates *in the prolonged apex*; below it are two veins from the transverse vein; the costal cell terminates before the middle of the wing.

But few species (only four British) are yet known in this genus; but from the extremely retired habits of the perfect insects of those that have been met with, it is by no means improbable that several other species may hereafter be detected. *Parasia Lappella* was a rarity, and but in few collections, and had been bred by no English collector, at the time that the authoress of the 'Episodes of Insect Life' published a notice of the habits of the larva. *Parasia Carlinella* was *entirely unknown* till Mr. Douglas bred it *in abundance* from the heads of *Carlina vulgaris*, gathered at Folkstone, in December.

The mode of feeding of the larvæ of these species is very different; both feed, it is true, in the heads of Composite plants, but that of *Lappella* feeds on *Arctium Lappa*, eating *through the seeds* (precisely resembling in habit the larva of *Gelechia bifrac-tella*), whereas the larva of *Carlinella*, feeding in *Carlina vulgaris*, *leaves the seeds untouched and devours the receptacle below the seeds*. The habits of the larvæ of *P. Metzneriella* and *neuroptella* are not yet known.

1. **Lappella**, Linn. S. N. (10) 537. 260 (1758); Fab.; Loew, E. Z. 1841. pl. i. f. 19-21. 1842. p. 257; Zell. E. Z. 1842. p. 259; Dougl.—*silacea*, Haw.; Curt.—*silacella*, Step.—*astivella*, Zell. Isis, 1839. Alis anticis *ochreis*, macula oblonga costæ basali, macula parva ante, maculaque pone medium costæ, brunneis, margine postico brunneo-suffuso, *venis nonnullis griseis, punctis tribus disci nigris*. Exp. al. 8 lin.

Head and face ochreous. Palpi pale ochreous, beneath darker. Antennæ fuscous, with darker annulations. Anterior wings *ochreous*, with a long patch at the base of the costa, a small spot on the costa before and one beyond the middle, brownish; the hinder margin is suffused with pale brownish; *several of the veins appear grey; on the disc are three black spots* (one on the fold before the middle, one beyond it nearer the costa, and one at the end of the discoidal cell); cilia pale ochreous, darker near the hinder margin. Posterior wings grey, with ochreous-grey cilia.

The perfect insect appears in June and July, but is rarely met with. The larva is abundant in the seeds of burdock (*Arctium Lappa*) in the autumn and winter.

2. **Metzneriella** (Dougl.), Sta. Sup. Cat. p. 5 (1851).—*paucipunctella*, Dougl.—*silacea*, var.  $\beta$ . Haw. Alis anticis *acuminatis subfalcatis dilute ochreis*, costa margineque postico fusco-brunneove suffusis, *venis omnibus griseis, punctis tribus disci nigris*. Exp. al. 7 lin.

Head and face pale ochreous. Palpi pale ochreous, beneath darker. Antennæ pale fuscous, with darker annulations. Anterior wings narrow, pointed, somewhat falcate, pale ochreous, suffused with brownish along the costa and hinder margin, *with all the veins grey*, and with three black spots on the disc (one on the fold a little before the middle, the second beyond it towards the costa, and the third at the end of the discoidal cell); before the dark hinder margin the pale ground-colour appears as an oblique fascia; cilia pale ochreous, darker near the hinder margin. Posterior wings grey, with greyish-ochreous cilia.

Scarce, the food of the larva not having been detected; occurs at Charlton, Mickleham, etc., in July and August.

3. **Carlinella** (Dougl.), Sta. Sup. Cat. p. 5 (1851); Dougl. Alis anticis *dilute ochreis*, costa late margineque postico fulvo-suffusis, dorso et fascia postica *obliqua non suffusis, venis nonnullis griseo-squamatis*. Exp. al.  $6-6\frac{1}{2}$  lin.

Head and face pale ochreous. Palpi pale ochreous, beneath dark ochreous. Antennæ brown, with pale ochreous annulations. Anterior wings *pale ochreous*, suffused with fulvous along the costa and hinder margin; *before the latter the paler ground-colour of the wings forms an oblique fascia; many of the veins are indicated by greyish scales*; cilia pale ochreous, with the tips and a line near the hinder margin fulvous. Posterior wings grey, with paler cilia.

The perfect insect has been but rarely met with; it appears in July and August. The larva feeds during the winter in the receptacle of *Carlina vulgaris*, and is very plentiful at Folkstone; also occurring at Mickleham.

4. **neuropterella** (F. v. R.), Zell. Isis, 1839. p. 202; Dup. L. F. Sup. iv. pl. 72. f. 1; Dougl. Alis anticis *ochreis*, costa margineque postico cinnamomeis, *venis omnibus distincte cinnamomeis*. Exp. al.  $8\frac{1}{2}$  lin.

Head and face dark ochreous. Palpi dark ochreous, beneath brownish. Antennæ pale brown, with darker annulations. Anterior wings *ochreous*, suffused with cinnamon-brown along the costa and towards the hinder margin, *with all the veins distinctly cinnamon-brown*; cilia fuscous, with a darker line near the hinder margin. Posterior wings bright grey, with greyish-fuscous cilia.

A scarce species, occurring in July and August, near Mickleham and near Deal.

Genus X. **CLEODORA.**

*Cleodora* p., Curt. B. E. fo. 671 (1837).

Capilli depressi. Ocelli nulli. Antennæ articulis elongatis (apicem versus obtuse et remote dentatæ), articulo basali elongato. Haustellum mediocre, squamiatum. Palpi labiales mediocres, articulo secundo infra scopiformi, *pilis antice valde productis*, articulo terminali aculeiformi reflexo. Alæ elongatæ, *longe ciliatæ*; posteriores ante apicem profunde emarginatæ; anteriores; cellula discoidalis elongata; vena apicalis *trifida*, infra eam rami quatuor; posteriores: cellula costalis valde angusta; vena subcostalis simplex; mediana trifida.

Head smooth. Ocelli none. Antennæ with elongate joints (towards the apex obtusely and remotely dentate); basal joint elongate. Tongue of moderate length, clothed with scales. Labial palpi moderately long; the second joint beneath like a brush, *the hairs anteriorly much prolonged*; terminal joint slender, pointed, reflexed. Wings elongate, *with long cilia*; the posterior deeply emarginate before the apex. In the anterior wings the discoidal cell is elongate, the apical vein *trifid*, beneath it are four veins from the discoidal cell. In the posterior wings the costal cell is extremely narrow; the subcostal vein is simple; the median vein is trifid.

Although several species of this genus occur on the continent, but one representative of it has yet been met with here. The larva of none of the species are known.

1. **Cytisella**, Curt. B. E. fo. 671 (1837).—*fuscipennis*, Westw.—*Walkeriella*, Dougl. Alis anticis lutescentibus, costam versus saturatioribus, vel brunnescentibus, strigulis posticis oppositis obliquis pallidis, costali longiore ac posteriore; ciliis griseo-fuscis, apice bis saturatius-cinctis. Exp. al.  $5\frac{1}{2}$  lin.

Head and face yellow. Palpi whitish-yellow. Antennæ pale fuscous. Anterior wings yellowish, towards the costa darker, more or less brownish, with two oblique opposite pale streaks towards the hinder margin, that on the costa is the longer and rather posterior; cilia greyish-fuscous, with two dark lines running round the apex of the wing. Posterior wings greyish-fuscous, with paler cilia.

This pretty species is not uncommon at Dartford Heath, in July, amongst fern and broom; it is rather restless in the net, running about with its wings half expanded.

Genus XI. **CHELARIA.**

CHELARIA, Haw. L. B. 526 (1829); Curt.; Step.; Dup. *Gelechia* p., Zell.

Capilli depressi. Ocelli nulli. Antennæ articulis confertis, vix denticulatis. Haustellum mediocre, squamatum. Palpi maxillares brevissimi. Palpi labiales longi, reflexi, *articulo secundo infra in fasciculum producto, tertio squamis appressis, apicem versus laevi acuminato*. Alæ clongatæ, posteriores ante apicem *leviter sinuatæ*, mediocriter ciliatæ.

Head smooth. Ocelli none. Antennæ with the joints thickly set, hardly denticulate. Tongue of moderate length, clothed with scales. Maxillary palpi extremely short. Labial palpi long, reflexed; *the second joint beneath prolonged into a tuft; the third joint with appressed scales, towards the apex smooth and pointed*. Wings elongate; the posterior *slightly sinuated* before the apex, with moderately long cilia.

But one species is known in this genus; and although the perfect insect is not uncommonly found on the trunks of poplars, the larva has not yet been observed. It is true that Madame Lienig has described a larva as belonging to this species, which she says lives in June on *birches*, making holes in the leaves; but some error is probable here, as the perfect insect seems exclusively attached to *poplars*.

1. **Hübnerella**, Don. B. I. xi. pl. 382 (1806).—*conscriptella*, Hüb.; Zell.—*conscripta*, Haw.—*rhomboidella*, Curt. B. E. fo. 368; Step.; Dup. Alis anticis cincreis, macula costæ mediæ triangulari, striolæque apicis atris. Exp. al.  $7\frac{3}{4}$ – $8\frac{1}{2}$  lin.

Head and face grey. Palpi yellowish, the projecting tuft of the second joint pale grey, with a dark grey streak on the side; the terminal joint with a broad dark fuscous ring. Antennæ yellowish, annulated with fuscous. Anterior wings pale grey, darker along the inner margin near the base; a triangular black spot lies on the costa in the middle, and a short straight black streak is immediately before the apex of the wing (on the costa are two or three minute dark fuscous spots); cilia grey, varied with fuscous. Posterior wings pale grey, with paler cilia.

Common on the trunks of Lombardy poplars, in September and October.

## Genus XII. **ANARSIA.**

ANARSIA, Zell. Isis, 1839. p. 190; Dup. Cat. *Aplota* p., Curt.

Capilli depressi. Frons convexa. Ocelli nulli. Antennæ remote denticulatæ. Haustellum mediocre, squamatum. Palpi labiales mediocres, articulus secundus infra longe squamato-fasciculatus, fasciculo antice producto; *tertius ♂ subnullus, ♀ aculeiformis laevis adscendens*. Alæ clongatæ *mediocriter ciliatæ*, posteriores trapeziformes ante apicem levissime retusæ; anteriores: vena apicalis furcata ante

apicem exit; ramus medianæ primus a secundo valde distat; venæ subdorsalis ramus inferior *deletus*; posteriores: vena apicalis prope basim furcata; venæ medianæ ramus primus valde distat a secundo; cellula costalis lata, postice valde coarctata.

Head smooth, rather convex in front. Ocelli none. Antennæ remotely denticulate. Tongue of moderate length, clothed with scales. Labial palpi of moderate length; the second joint beneath with a tuft of scales, which is prolonged in front; *terminal joint of the ♂ very short* (concealed in the long scales of the second joint); of the ♀ smooth, pointed, and ascending. Wings elongate, with *cilia of moderate length*, the posterior trapezoidal, very slightly retuse before the apex. In the anterior wings the furcate apical vein runs into the costa before the apex; the first branch of the median vein is very distant from the second branch; the lower branch of the subdorsal vein is *obsolete*. In the posterior wings the apical vein is furcate near the base; the first branch of the median vein is very distant from the second; the costal cell is broad, posteriorly extremely narrow.

In this genus we have only two British species (on the continent are two others, one of which is injurious to apricots and peaches); they frequent heaths, and take short straight flights. As we find to be the case in other genera of *Tineina*, two nearly allied plants (*Spartium Scoparium* and *Genista tinctoria*) serve as food for the larvæ of two nearly allied species.

1. **Spartiella**, Schr. F. B. ii. 104. 1798 (1802); Zell.; F. v. R.—*Robertsonella*, Curt. B. E. fo. 655. Alis anticis *dilute griseis*, paullulum fusco-suffusis, striis numerosis obliquis costæ fuscis, macula plicæ ante medium, macula disci in medio, tertiæque disci pone medium fuscis. Exp. al. 7 lin.

Head, face, and palpi pale grey. Antennæ pale grey, annulated with dark fuscous. Anterior wings *pale grey*, rather suffused with fuscous, with several short oblique fuscous streaks along the costa, and with a spot on the fold before the middle, one on the disc in the middle, and one on the disc beyond the middle fuscous (occasionally with a few dark fuscous scales); at the apex of the hinder margin are two or three dark fuscous spots; cilia greyish-fuscous. Posterior wings pale grey, with pale fuscous cilia.

Common in many places in July, among broom and furze. The larva feeds in May and June, in the terminal shoots of broom (*Spartium Scoparium*).

2. **Genistæ**, n. sp. Alis anticis *saturatissime griseis*, dilute grisco-irroratis, costa basim versus dilutiore, stria obliqua mediæ costæ saturatissime grisea, nigra. Exp. al. 7 lin.

Head, face, and palpi rather dark grey. Antennæ pale grey, annulated with dark grey. Anterior wings *very dark grey*, slightly irrorated with pale grey; the costa towards the base is rather paler; from the



middle of the costa is a very dark grey or black oblique streak, but there are no other definite markings; cilia dark grey. Posterior wings grey, with pale fuscous cilia.

Hitherto scarce; but Mr. Weir has bred the species in July, from larvæ feeding in the shoots of *Genista tinctoria*, in June. Mr. Weir found them at Pembury, near Tunbridge Wells.

### Genus XIII. **YPSOLOPHUS.**

*Ypsolophus* p., Haw.; Zell. *Rhinosia* p., Treit.; Dup. *Macrochila* p., Step.

Capilli depressi. Ocelli nulli. Antennæ setaceæ, remote denticulatæ, ♂ microscope ciliatæ. Haustellum mediocre, squamatum. Palpi labiales articulo secundo infra scopiformi, pilis antice productis, articulo ultimo laevi, aculeiformi, recurvo. Alæ elongatæ, mediocriter ciliate, posteriores trapeziformes ante apicem levissime retusæ; anteriores: vena apicalis furcata ante apicem exit; cellula secundaria nulla; vena mediana in furcam terminatur; subdorsalis furcata; submediana non incrassata; posteriores: cellula costalis normalis; vena subcostalis e venula transversali furcata; mediana trifida.

Head smooth. Ocelli none. Antennæ setaceous, remotely denticulate (of the ♂, viewed through a lens, ciliated). Tongue of moderate length, clothed with scales. Labial palpi, with the second joint beneath, formed like a brush, with the hairs produced in front; *the last joint smooth, pointed, recurved*. Wings elongate, *with moderate cilia*; the posterior trapeziform, very slightly retuse before the apex. In the anterior wings the furcate apical vein runs into the costa before the apex; the secondary cell is not indicated; the median vein terminates *in a fork*; the subdorsal vein is furcate; the submedian is not thickened. In the posterior wings the costal cell is without any peculiarity; the subcostal vein is furcate from the transverse vein; the median vein is trifid.

Of five continental species, only two have been observed in this country. The habits of the perfect insect are very similar to those of the preceding genus. The habit of the larva of *Yp. Marginellus* is to feed near the ends of the juniper twigs, in a considerable mass of web, which at first sight appears extremely like the abode of a spider. Whether this habit prevails in all the other species of the genus, I am not aware (Fischer's figure of the larva of *Juniperellus* shows a complete accordance with the habit of the larva of *Marginellus*).

1. **fasciellus**, Hüb. Tin. 111 (1801); Haw.; Treit.; Dup.; Step. Curt. Alis anticis dilute rufo-fuscis, dorso late fusco-suffusis, punctis  
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tribus obsoletis (uno plicæ, altero disci ante medium, tertio disci pone medium) saturate fuscis, *fascia pone medium angulata fusca*. Exp. al. 10 lin.

Head and face dark greyish-ochreous. Palpi reddish-fuscous, internally pale greyish-ochreous; terminal joint pale greyish-ochreous, externally with a dark fuscous line. Antennæ pale fuscous. Anterior wings pale reddish-fuscous, with the inner margin to beyond the middle broadly suffused with fuscous, and with three obsolete dark fuscous spots (one on the fold, one rather posterior on the disc before the middle, and one on the disc beyond the middle); *beyond the middle is a fuscous angulated fascia*; cilia pale reddish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

The perfect insect appears in May, and has recently been taken by Mr. Tompkins, near Lewes. The larva (according to Tischer) feeds in September, in rolled-up leaves of the sloe.

2. **Marginellus**, Fab. S. I. ii. 307. 8 (1781); Don.; Haw.; Step.; Curt.—*striatella*, Hüb. Tin. 154.—*clarella*, Treit.; Dup. Alis anticis nitide ochreo-fuscis, costa dorsoque niveis. Exp. al.  $7\frac{1}{2}$  lin.

Head and face white. Palpi white; the second joint beneath dark fuscous; the terminal joint white externally, with a dark fuscous line. Antennæ dark fuscous. Anterior wings bright ochreous-fuscous, with a white streak along the costa (but not touching the costa beyond the middle), terminating in a point before the apex, and a white streak along the inner margin terminating in the hinder margin; there are a few dark fuscous spots along the hinder margin; cilia greyish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

Not scarce, among junipers, in July and August. The larva feeds in June in a web near the ends of the twigs of the juniper-bushes.

#### Genus XIV. **APLOTA.**

**APLOTA**, Step. H. iv. 225 (1834). *Ypsolophus* p., Haw.

Capilli depressi. Ocelli nulli. Antennæ denticulatæ, *microscope pubescentes*. Haustellum mediocre, squamatum. Palpi labiales mediocres, articulus secundus infra longe squamato-fasciculatus, fasciculo antice producto, *tertius subnullus*. Alæ anteriores *oblongo-clongatæ*, *sub apicem levissime reclusæ*, posteriores clongato-ovatæ, mediocriter ciliatæ.

Head smooth. Ocelli nonc. Antennæ *denticulate, microscopically pubescent*. Tongue of moderate length, clothed with scales. Labial palpi moderately long; the second joint beneath with a tuft of scales which is produced in front; *third joint extremely short, concealed in the hairs of the second joint*. Anterior wings *oblong-clongate, very slightly*

*retuse below the apex*; posterior wings elongate-ovate, with moderately long cilia.

Only one species is known in this genus; it is exclusively British, not having hitherto been detected on the continent.

1. **palpella**, Haw. L. B. 545 (1829); Step.; Curt. *Alis anticis fuscis, lutco-squamatis, punctis tribus (uno disci, secundo vix posteriore plicæ ante medium, tertio disci pone medium) saturate fuscis.* Exp. al. 6 lin.

Head and face yellowish, mixed with fuscous. Palpi dark fuscous; internally towards the base yellowish; tip of the terminal joint white. Antennæ fuscous. Anterior wings fuscous, with numerous yellowish scales, with three dark fuscous spots (one on the disc, one a little posterior on the fold before the middle, and one on the disc beyond the middle); cilia greyish-fuscous. Posterior wings dark fuscous, with paler cilia.

Very rare; in Mr. Shepherd's collection, and in the collection of the British Museum; it has been taken near Ripley among clover, and in Hainault Forest, in August.

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#### Genus XV. **NOTHRIS.**

*Nothris p.*, Hüb. V. 411 (1816). *Ipsolophus p.*, Zell.

Capilli depressi. Ocelli nulli. Antennæ setacæ, *articulis oblongis, vix distinctis, ♂ non nodulosis, pubescente-ciliatis.* Haustellum medioere, squamatum. Palpi labiales, articulo secundo infra scopiformi, pilis antice productis; articulo ultimo lævi, aculeiformi, recurvo. Alæ elongatæ *mediocriter ciliatæ*; anteriores, *cilia circa apicem non productum, non picta*; posteriores trapeziformes, ante apicem levissime retusæ; anteriores: vena apicalis furcata ante apicem exit; cellula secundaria nulla; venæ medianæ *ramus primus a secundo valde distat*; subdorsalis furcata; submedian non incrassata; posteriores: cellula costalis normalis; vena subcostalis *longe furcata*; mediana trifida.

Head smooth. Ocelli none. Antennæ setaceous, *with the joints oblong, scarcely distinct*; in the ♂ not knotty, with pubescent ciliations. Tongue of moderate length, clothed with scales. Labial palpi with the second joint beneath formed like a brush, with the hairs produced in front; the terminal joint smooth, pointed, recurved. Wings elongate, *with moderate cilia*; *the cilia round the not-produced apex of the anterior wings are not adorned with markings*; the posterior wings trapeziform, before the apex very slightly retuse. In the anterior wings the furcate apical vein runs into the costa before the apex; the secondary cell is not indicated; *the first branch of the median vein is at a considerable distance from the second branch*; the subdorsal vein is furcate; the submedian is not thickened. In the posterior wings the costal cell is

of the ordinary form; the subcostal vein is *furcate for a long distance*; the median vein is trifid.

Of the three species referable to this genus, two are British; both recently added to our 'Fauna.' *Durdhamella* was first taken by Mr. Sircom a few years back, and has since been met with by Mr. C. Jordan. *Verbascella* was bred only last summer by Mr. Wing, from larvæ accidentally brought into his garden on some plants of *Verbascum pulverulentum*, from the neighbourhood of Norwich.

1. **Verbascella**, W. V. 136. 36 (1776); Hüb. Tin. 98; Schr.; Treit.; Bouché; Dup.; Zell. Alis anticis dilute ochreis, squamis sparsis fuscis, puncto basali costæ, puncto minuto plicæ ante medium, puncto majore disci pone medium, punctisque marginis postici saturate fuscis. Exp. al. 10 lin.

Head and face pale ochreous. Palpi pale ochreous; tuft of the second joint beneath dark fuscous. Antennæ pale ochreous. Anterior wings pale ochreous, with a few scattered dark fuscous scales, with a small dark fuscous spot at the base of the costa, a smaller one on the fold before the middle, and a more conspicuous one on the disc beyond the middle; along the hinder margin and apex of the costa are a few small dark fuscous spots; cilia pale ochreous. Posterior wings pale grey, with pale ochreous cilia.

Bred last July by Mr. Wing, from larvæ on *Verbascum*. The larvæ may be found nearly throughout the year on the plants they frequent; Mr. Wing found them on *Verbascum pulverulentum* near Norwich.

2. **Durdhamella**, Sta. Cat. p. 12 (1849). Alis anticis ochreis, puncto plicæ, punctoque minore disci ante medium, puncto parvo disci pone medium, nigris, macula plicæ angulum analem versus fusca, fascia postica nebulosa fusca. Exp. al.  $7\frac{1}{2}$  lin.

Head and face ochreous. Palpi pale ochreous; the second joint externally towards the base dark fuscous. Antennæ pale ochreous. Anterior wings ochreous, with a black spot on the fold, and a smaller one above it before the middle, another small black spot is on the disc beyond the middle; on the fold before the anal angle is a dark fuscous blotch; beyond the middle is a cloudy fuscous fascia, and the apex of the hinder margin is dark fuscous; cilia pale ochreous. Posterior wings pale grey, with paler cilia.

Appears in July; has occurred on Durdham Downs, near Bristol, and at Teignmouth.

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#### Genus XVI. **SOPHRONIA.**

*Sophronia* et *Pleurota* p., Hüb. V. 407. 406 (1816). *Ypsolophus* p.,

Haw.; Zell. *Palpula* p., Treit.; Dup. *Machrochila* p., Step. *Ap-lota* p., Curt.

Capilli depressi. Ocelli nulli. Antennæ setacæ, *articulis oblongis vix distinctis, ♂ non nodulosus, pubescente-ciliatis*. Haustellum medioere, squamatum. Palpi labiales articulo secundo infra scopiformi, pilis antice productis; articulo ultimo lævi, aculeiformi, recurvo. Alæ elongatæ *longius ciliatæ*, anteriores, *cilia circa apicem productum picta*, posteriores trapeziformes ante apicem levissime retusæ; anteriores: vena apicalis furcata ante apicem exit, cellula secundaria nulla, venæ medianæ *ramus primus a secundo valde distat*; subdorsalis furcata; submedianæ non incrassata; posteriores: cellula costalis normalis; vena subcostalis *prope basim furcata*; mediana trifida.

Head smooth. Ocelli none. Antennæ setaceous, *with the joints oblong, scarcely distinct; in the ♂ not knotty, with pubescent ciliations*. Tongue of moderate length, clothed with scales. Labial palpi with the second joint beneath formed like a brush, with the hairs produced in front; the terminal joint smooth, pointed, recurved. Wings elongate, *with rather long cilia; the cilia of the anterior wings round the produced apex are adorned with markings*; posterior wings trapezoidal, very slightly retuse before the apex. In the anterior wings the furcate apical vein runs into the costa before the apex, the secondary cell is not indicated, *the first branch of the median vein is at a considerable distance from the second*; the subdorsal vein is furcate; the submedian is not thickened. In the posterior wings the costal cell is of the ordinary form; the subcostal vein is *furcate from near the base*; the median vein is trifid.

We have only two species in this genus, which may readily be distinguished as follows:—

*a.* With no streaks from the costa before the apex. Species 1.

*a a.* With several streaks from the costa before the apex. Species 2.

(There are several other continental species in the latter section.)

Very little is known of the habits of the perfect insects, and none of the larvæ are known.

**1. *parenthesella***, Linn. F. S. 1435 (1761); Fab.; Haw.; Step.; Curt.—*Genistella*, Illig.; W. V. ?—*semicostella*, Hüb. Tin. 395; Treit.; Dup. Alis anticis brunneis, griseo-suffusis, costa usque pone medium anguste alba, macula oblonga plicæ ante, punctisque duobus disci pone medium saturate fuscis, venis posticis albido-squamatis, puncto apicali saturate fusco. Exp. al. 8 lin.

Head and face pale grey. Palpi pale grey; terminal joint at the apex fuscous. Antennæ dark fuscous. Anterior wings brown, rather suffused with grey, especially along the inner margin, the costa to beyond the middle narrowly white; on the fold before the middle is an oblong dark fuscous spot, and beyond the middle are two dark fuscous spots on the disc, beyond the lower of which some of the veins are in-

licated by whitish scales; in the extreme apex is a dark fuscous spot; cilia pale grey, traversed by dark fuscous lines. Posterior wings greyish-fuscous, with paler cilia.

The perfect insect is not uncommon at West Wickham Wood, and in Headley Lane, in June and July. The wings are rather convoluted in repose.

2. **humarella**, Hüb. Tin. 292; Dup.; W. V. ? *Alis anticis nitide fuscis, stria basali costæ ante medium a costa deflexa, strigulis tribus costæ, unaque dorsi, pone medium albis, puncto apicis nigro.* Exp. al. 5 lin.

Head and face pale grey. Palpi pale grey; tip of the terminal joint dark fuscous. Antennæ dark fuscous. Anterior wings *bright fuscous*, with a white streak along the costæ *beginning at the base*, deflexed from the costa a little before the middle, terminating on the disc beyond the middle; beyond the middle of the costa are three white streaks, the first is narrow and oblique, pointing posteriorly, and almost meeting a less distinct white streak from the anal angle; the other two streaks are shorter, pointing internally; a slender short black streak lies on the disc beyond the middle, and *at the extreme apex is a black spot*; cilia greyish-fuscous. Posterior wings greyish-fuscous, with paler cilia.

Two specimens, in Mr. Doubleday's collection; locality unknown.

## Genus XVII. **PLEUROTA.**

*Pleurota* p., Hüb. V. 406 (1816). *Palpula* p., Treit.; Dup. *Macrochila* p., Step. *Aplota* p., Curt. *Anchinia* p., Zell.

Capilli decumbentes, ultra frontem producti. Ocelli nulli. Antennæ articulis distinctis, ♂ ciliatæ. Palpi maxillares breves, filiformes. Palpi labiales *recti, longiusculi, compressi*, articulo secundo valde piloso, basi tenui, articulo tertio tenui, *lævi, aculeiformi*, brevi. Alæ *elongatæ* acutæ, posteriores trapezoidali-lanceolatæ, prope angulum analem leviter sinuatæ, longius ciliatæ; anteriores: venæ apicalis ramus inferior *infra apicem exit*; medianæ ramus primus *parum curvus*; *submediana a mediana distat*; vena subdorsalis furcata.

Hairs of the head decumbent, produced in front. Ocelli none. Antennæ with distinct joints, ciliated in the ♂. Maxillary palpi short, filiform. Labial palpi *straight, rather long, compressed*, the second joint extremely hairy, slender at the base, the remainder uniform, the terminal joint *slender, smooth, pointed*, short. Wings *elongate*, acute, the posterior trapezoidal-lanceolate, towards the anal angle slightly sinuated, with rather long cilia. In the anterior wings the lower branch of the furcate apical vein runs into the hinder margin *below the*

*apex*; the first branch of the median vein is *slightly curved*; the submedian is remote from the median; the subdorsal vein is furcate.

This genus has only one representative in this country, which is found commonly on heaths in June and July. Nothing is known of its primary states.

1. **bicostella**, Linn. F. S. 1438 (1761); Scop.; Hüb. Tin. 115; Haw.; Treit.; Dup.; Step.; Curt.—*marginella*, Fab.—*viduella*, Scop.? Alis anticis albis, griseo-fusco valde suffusis, præcipue dorsum versus, stria (juxta costam albam non suffusam) a basi usque ad apicem fusca, punctis duobus disci, uno ante, altero pone medium nigris. Exp. al. 10–11 lin.

Head and face white, mixed with grey. Palpi greyish-white; terminal joint white, with the base and apex grey. Antennæ dark fuscous. Anterior wings white, much dusted with greyish-fuscous, especially towards the inner margin; the costa alone remaining narrowly pure white; immediately below it is a fuscous streak from the base to the apex; beneath it are two black spots on the disc, one before and the other beyond the middle; under the first is a small dark fuscous spot on the fold, and under the second a fuscous cloud; the hinder margin is spotted with dark fuscous; cilia greyish-white. Posterior wings pale greyish-fuscous, with paler cilia.

Common throughout the country on heaths, from the end of May to the middle of July.

#### Genus XVIII. **HARPELLA.**

**HARPELLA**, Schr. F. B. ii. 168 (1802); Zell. *Alabonia*, Step. *Enicostoma*, Dup. *Alabonia* p., Hüb. *Recurvaria* p., Haw. *Adela* p., Treit.

Capilli depressi, postice suberecti; frons lata. Ocelli nulli. Antennæ *tenuæ*, corpore non breviores, ♂ ciliatæ. Palpi labiales *longi compressi*, articulo secundo parum curvato, pilis appressis, tertio tenui *adscendente acuto*. Haustellum breve, squamatum. Alæ anteriores oblongæ, posteriores oblongo-ovate mediocriter ciliatæ; anteriores: venæ apicalis ramus inferior in apicem exit; cellula secundaria nulla; vena subdorsalis furcata; submediana a mediana distat, in apice incrassatur.

Head smooth, with the scales behind slightly erect; forehead broad. Ocelli none. Antennæ *slender*, not shorter than the body; in the ♂ ciliated. Labial palpi *long, compressed*; the second joint slightly curved with appressed scales; the third joint slender, *ascending*, pointed. Tongue short, clothed with scales. Anterior wings oblong; posterior wings oblong-ovate, with moderately long cilia. In the anterior wings the lower branch of the apical vein terminates in the apex (in some of

the continental species of this genus it terminates above the apex); the secondary cell is not indicated; the subdorsal vein is furcate; the submedian, posteriorly thickened, is remote from the median vein.

The species of this genus are large, showy insects, and appear to delight to fly in the sunshine. Only one occurs in this country, and of that the larva is unknown. Of a continental species however, *H. forficella*, the larva has long been known as feeding in decayed wood, hence probably our English species has similar habits.

1. **Geoffrella**, Linn. S. N. (12) 896. 430 (1767); Dup. xi. pl. 303. f. 2; Zell. (E. Z. 1850).—*Geoffroyella*, Step.; Sta.; Fab.—*Geoffroyi*, Haw. Alis anticis flavis, in medio saturatoribus, apicem versus fusco-suffusus et *nigro-striatis*, striis duabus ex basi, striolaque ex medio costæ plumbeo-caruleis, maculis posticis *sub* oppositis (costali posteriore) dilute luteis. Exp. al.  $9\frac{1}{2}$  lin.

Head yellow, with a dark fuscous blotch in the middle. Face dark fuscous. Palpi dark fuscous; the last two-thirds of the terminal joint whitish. Antennæ yellowish-white, annulated with fuscous. Anterior wings bright yellow, darker in the middle, and towards the apex suffused with fuscous; from the middle of the base is a straight leaden-blue streak, which before the middle of the wing is deflected, and terminates on the inner margin about the middle, where it meets a narrower leaden-blue streak from the base below the fold; the costa at the base is narrowly dark fuscous, and on the middle of the costa is a dark fuscous blotch, in which arises a rather oblique leaden-blue streak, running half across the wing; beyond the middle of the inner margin is a conspicuous triangular pale yellow spot, and a smaller pale yellow triangular spot is on the costa *rather posterior*; on the inner margin of both of these spots are some leaden-blue scales; *the veins in the apical portion of the wing are indicated by black scales*; cilia dark fuscous, the tips paler. Posterior wings dark fuscous, with paler cilia.

From the middle of May to the middle of June, this beautiful insect is generally abundant, in mixed hedges and in woods; the slow, undulating flight has some resemblance to that of an *Adela*; it delights to fly in the early morning, preferring sunny mornings.

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#### Genus XIX. **HYPERCALLIA.**

**HYPERCALLIA**, Step. H. iv. 194 (1834); Zell. *Carcina* p., Hüb. *Lampros* p., Treit.

Capilli decumbentes, antice ultra frontem producti, postice erecti.

Ocelli nulli. Antennæ medioeres, articulis distinctis, ♂ ciliatæ.

Haustellum breve, squamatum. Palpi labiales *longi, compressi, pilis*



*appressis*, articulo secundo longissimo, subcurvo, æquali, tertio tenui recto acuminato. Alæ latæ, mediocriter ciliatæ, anteriores acutæ, posteriores trapezoidales; anteriores: venæ apicalis ramus inferior *sub apice* exit; venæ medianæ ramus primus *valde curvus*; submedianâ juxta medianam postice recedit et incrassatur.

Hairs of the head decumbent, produced in front beyond the forehead, behind erect. Ocelli none. Antennæ moderate, with distinct joints, ciliated in the ♂. Tongue short, clothed with scales. Labial palpi *long, compressed, with appressed scales*; the second joint very long, slightly curved, equal throughout; the third joint slender, straight, pointed. Wings broad, with moderate cilia; the anterior acute; the posterior trapezoidal. In the anterior wings the lower branch of the apical vein runs into the hinder margin *below the apex*; the first branch of the median vein is *very much curved*; the submedian is close to the median, but recedes posteriorly, where it is thickened.

Only one species in this genus is known; its larva has not been detected.

1. **Christiarnana**, Linn. S. N. (12) 877. 303 (1767); Fab.; W. V.; Hüb. Tort. 152; Step. pl. 38. f. 2; Dup.—*Christiarnella*, Hüb.; Treit.—*citrinalis*, Scop.? Alis anticis dilute luteis, strigis coccineis reticulatis, punctisque parvis coccineis. Exp. al.  $8\frac{1}{2}$  lin.

Head and face pale yellow. Palpi pale yellow; terminal joint beneath pale fuscous. Antennæ whitish, annulated with fuscous. Anterior wings pale yellow, almost reticulated with scarlet streaks; the first along the costa at the base, with two oblique projections from it, the second of which meets another streak from the middle of the costa, which appears to be continued to the inner margin near the base, a branch from it running to the inner margin beyond the middle; from the middle of the costa is another streak directed outwards, meeting an oblique streak from the costa running inwardly; below it are some scarlet spots, and there is a small scarlet spot at the base of the inner margin; before the hinder margin is a nearly straight scarlet fascia, terminating in the apex; cilia very pale yellow. Posterior wings greyish-fuscous, with paler cilia.

Very rare in this country; has occurred near Darenth Wood, at Greenhithe, and at Castle Eden Dean; it appears at the end of June and beginning of July.

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## Genus XX. **DASYCERA.**

*Dasycerus*, Haw. L. B. 524 (1829). *Æcophora*, Curt.; Step. *Dasy-cera* et *Stenoptera*, Dup. *Æcophora* p., Lat. *Esperia* p. et *Alabonia* p., Hüb.

Capilli depressi. Frons inter antennis subangusta. Ocelli nulli. An-

tennæ *basim versus incrassatæ, dorso e basi squamato-piloso*, apice mediuseculo. Haustellum mediocre, squamatum. Palpi labiales vix thoracis longitudine, reflexi, articulo secundo compresso, pilis appressis, tertio tenui, acuto, *prioris fere longitudine*. Alæ elongatæ, posteriores ovatæ, angulo anali obtuso; anteriores: venæ apicalis ramus inferior supra apicem exit; cellula secundaria nulla; vena subdorsalis furcata; posteriores: venæ duæ e venula transversa procedunt.

Head smooth. Forehead, between the antennæ, rather narrow. Ocelli none. Antennæ *towards the base thickened, with hairy scales on the back at the base*, with the apex comparatively naked. Tongue of moderate length, clothed with scales. Labial palpi hardly as long as the thorax, reflexed; the second joint compressed, with appressed scales; the third joint slender, pointed, *nearly as long as the second*. Wings elongate, the posterior ovate, with obtuse anal angle. In the anterior wings the lower branch of the apical vein runs into the costa before the apex; there is no secondary cell, and the subdorsal vein is furcate; in the posterior wings two veins proceed from the transverse vein.

We have but two species in this genus (a third, *closely allied* to *Oliviella*, has been met with in Asia Minor); being of gay colours, they fly during the day (it being found an almost invariable rule, that the richly-coloured species of *Lepidoptera* fly during the day, when their colours may be exposed to view); the flight of *D. sulphurella* is rather straight and sharp, but that of *D. Oliviella* is undulating and sluggish. The larva of *D. sulphurella* has been known for some time; it feeds in decayed and decaying wood, preferring to place itself immediately beneath the bark, but not disdaining to penetrate deep into the wood itself; it is of an unusually elongated form.

1. **sulphurella**, Fab. S. E. 670. 19 (1775): Curt. B. E. fo. 408; Step.—*annulifera*, Four.—*cornutella*, Fab.—*orbonella*, Hüb.; Dup.; Zell. Alis anticis fuscis, dilute luteo-irroratis, præcipue apicem versus, stria brevi basali juxta costam, stria altera brevi plicæ (♀ ultra medium producta) *maculisque oppositis* (costali minore, obsoletiore) pone medium *dilute luteis*; *alis posticis dilute luteis*, saturate fusco-fimbriatis. Exp. al.  $7\frac{1}{2}$  lin.

Head bronzy, with a few yellow hairs. Face bronzy. Palpi bright yellow; terminal joint dark fuscous. Antennæ dark fuscous, almost black, with three white annulations a little beyond the middle. Anterior wings fuscous, with numerous pale yellow scales, especially towards the hinder margin; from the base is a short yellow streak near the costa, and another on the fold (continued to beyond the middle in the ♀); *on the inner margin, beyond the middle, is a triangular pale yellow spot, and on the costa nearly opposite is a smaller but distinct pale*

*yellow spot*; some iridescent scales mark the course of the veins to beyond the middle, and also indicate the termination of the discoidal cell; cilia fuscous, iridescent in certain lights. *Posterior wings pale yellow*, with the anterior and hinder margins dark fuscous, and a slight fuscous cloud at the base; cilia pale fuscous.

Very common in the south of England, appearing with the first setting in of summery weather; it delights to fly in the daytime along old hedges. The larva is to be found throughout the winter, under the bark of old posts and decaying trees.

2. **Olivella**, Fab. E. S. iii. 2. 316. 132 (1794); Lat.; Curt.; Step.; Dup. xi. pl. 303. f. 1; Zell.—*Olivieri*, Haw.—*œnulella*, Hüb.; Treit.—*bractella*, Fab.?—*crassicornis*, Four.? Alis anticis nigris, postice albido-squamatis, macula triangulari basali prope dorsum, *fasciaque pone medium (ad dorsum repandata, costam non tangente) dilute luteis*, striga ante medium, striga curvata (plicam tangente) pone fasciam luteam, iridescentibus; *alis posticis saturate purpureo-fuscis*. Exp. al. 8 lin.

Head and face very dark metallic-purple. Palpi yellow; terminal joint externally dark fuscous. Antennæ black to beyond the middle, then white, with the tips black. Anterior wings purplish-black, with a triangular pale yellow spot at the base towards the inner margin, and a *pale yellow fascia (rather expanded on the inner margin, and not reaching to the costa) beyond the middle*; before the middle is an iridescent striga, and beyond the yellow fascia is another slightly curved iridescent striga, not reaching beyond the fold; beyond it are numerous scattered whitish scales; cilia dark purplish-fuscous. *Posterior wings dark purplish-fuscous*, with paler cilia.

Not uncommon among oaks, from the end of June to the beginning of August.

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## Genus XXI. ÆCOPHORA.

*Ecophora* p., Zell. Isis, 1839. p. 191; Dup. Cat. *Recurvaria* p., Haw. *Lampros* p., Treit. *Anacamptis* p. et *Batia*, Step. *Pancalia* p. et *Batia*, Curt. *Borkhausenia*, *Denisia* p., et *Schiffermülleria* p., Hüb.

Capilli depressi. Frons lata, convexa. Ocelli nulli. Antennæ *tenues*, ♂ ciliatæ. Palpi labiales *reflexi, vix thoracis longitudine*, articulo secundo longiore compresso, squamis appressis; tertio tenui acuto. Haustellum medioere, squamatum. Alæ oblongæ vel elongatæ, longius ciliatæ, posteriores angulo anali obtuso; anteriores: venæ apicalis ramus inferior supra apicem exit; venæ subdorsalis furcata; posteriores: e venula transversa venæ duæ procedunt.

Head smooth. Forehead broad, convex. Ocelli none. Antennæ *slender*, in the ♂ ciliated. Labial palpi *reflexed, hardly as long as the*

*thorax*; the longer second joint compressed and with appressed scales; terminal joint slender and pointed. Tongue of moderate length, clothed with scales. Wings oblong or elongate, with rather long cilia, the posterior with obtuse anal angle. In the anterior wings the lower branch of the apical vein runs into the costa before the apex; the subdorsal vein is furcate; in the posterior wings two veins proceed from the transverse vein.

This genus, as now restricted, still contains species of various aspects and different habits, though in structure they show a complete agreement. Some of the species are so brightly coloured, they might be expected to be day-flying species, which I am not aware to be the case; others are of a dingy sombre appearance. *Tripuncta* and *fuscescens* have a peculiar hovering flight, and run about in the net with their wings slightly raised, almost invariably dying with their wings over the back (thereby trying the patience of the collector). *Unitella* has a partiality for standing almost perpendicularly on its head, a position which (I believe) *lunaris* also sometimes assumes; but more frequently *lunaris* reposes parallel to the surface on which it rests, with its pretty annulated forelegs stretched out before it, like a *Cerura*.

The larva of *minutella* is probably, like that of *pseudo-spretella*, a general feeder on all sorts of dry goods; the latter, from its large size, must do a considerable amount of injury where it obtains a footing, and, though formerly unknown, is now abundant throughout London, and has appeared in many of the provincial towns; it may originally have been imported, but it will probably continue British, as long as there is trade and population in these islands. As an instance of the voracity of the larva of *pseudo-spretella*, Mr. H. Doubleday, who has been much tormented with them in his breeding-cages, has known them devour a living pupa of *Smerinthus populi*. The larvæ of all the other species probably feed in decayed wood, and, as it is not likely that they attack healthy trees, cannot be considered as injurious to us; but are more to be considered in the light of scavengers employed in removing that which is decayed and useless.

There are seventeen species in this genus which have occurred in this country; these species may be arranged in the following table:—

- a. Anterior wings black or dark fuscous.
  - b. With two yellow spots. Species 1, 2.
  - b b. With three yellowish spots. Species 3, 4.
  - b b b. With yellowish fasciæ. Species 5.
- a a. Anterior wings dark orange, with black marks on the margins. Species 6, 7.

*a a a*. Anterior wings pale orange.

*c*. With oblique marginal white streaks. Species 8.

*c c*. With a black spot at the anal angle. Species 9, 10.

*a a a a*. Anterior wings ochreous (pale or dark) or fuscous.

*d*. With black spots on the disc. Species 11, 15–17.

*d d*. Unspotted. Species 12–14.

1. **minutella**, Linn. S. N. (10) 537. 256 (1758); Schr.; Dup.—*oppositella*, Fab.; Hüb.; Haw.; Treit.; Step.; Dup. xi. pl. 300. f. 9.—*Mays*, Four. Alis anticis fuscis, macula transversa dorsi pone medium, maculaque obliqua posteriore costæ luteis. Exp. al.  $5\frac{1}{2}$  lin.

Head greyish-fuscous. Face greyish-ochreous. Palpi fuscous, internally whitish. Antennæ fuscous. Anterior wings fuscous, with a conspicuous transverse yellow spot on the inner margin beyond the middle, and a smaller rather oblique yellow spot on the costa, a little posterior; cilia pale fuscous. Posterior wings pale greyish-fuscous, with paler cilia.

Found not uncommonly in houses and outhouses in May and June. I have bred it from a larva found by Mr. Preston, feeding on the seeds of celery during the winter.

2. **flavimaculella**, Sta. Cat. p. 13 (1849).—*minutella*, Haw.; Step. Alis anticis saturate fuscis, maculis duabus dilute flavis, altera obliqua in medio dorsi, altera rotunda disci pone medium. Exp. al. 5 lin.

Head, face, palpi, and antennæ dark fuscous. Anterior wings dark fuscous, with two pale yellow spots, one rather oblique on the middle of the inner margin, the other rounded on the disc beyond the middle; cilia pale fuscous. Posterior wings greyish-fuscous, with paler cilia.

Occurs near Huddersfield and at Duddingstone, in June and July; also in other places, but not common. Mr. Logan finds the larva feeding on the seeds of *Angelica sylvestris* in August and September.

3. **tripuncta**, Haw. L. B. 557 (1829).—*tripunctella*, Step.—*trimaculella*, Dup. xi. pl. 303. f. 8.—*tresignella*, Zell. Alis anticis saturate fuscis, maculis tribus luteo-albis, una costæ in medio, altera costæ apicem versus, tertia intermedia plicæ. Exp. al. 6 lin.

Head dark fuscous. Face pale ochreous. Palpi yellowish-white. Antennæ dark fuscous, the tips yellowish-white. Anterior wings dark fuscous, with three yellowish-white spots, one on the costa in the middle, one on the costa towards the apex, the third intermediate between these two, on the fold, almost connected with the inner margin by some scattered yellowish-white scales; cilia dark fuscous, with the tips whitish. Posterior wings grey, with paler cilia.

Very common in old hedges in several places near London, in May and June; it appears to frequent brambles.

4. **similella**, Hüb. Tin. 182 (1801); Treit.; Zell.; Richter (E. Z. 1850); Dup. ?—*stipella*, Cl. ? Alis anticis saturate fuscis, sulphureo-

irroratis, maculis tribus sulphureis, una plicæ prope basim, altera dorsali pone medium, tertia mediocri costæ apicem versus; capite luteo, stria fusca. Exp. al.  $6\frac{1}{2}$  lin.

Head pale yellow, with a fuscous streak along the middle. Face pale yellow. Palpi pale yellow, the second joint internally dark fuscous; terminal joint with a broad fuscous ring before the apex. Anterior wings dark fuscous, with numerous scattered sulphur scales, and with three sulphur spots, one on the fold near the base, and connected with the base along the fold, one on the inner margin beyond the middle, and one on the costa before the apex, not reaching half across the wing; at the anal angle are a few sulphur scales; cilia fuscous, varied with sulphur. Posterior wings greyish-fuscous, with paler cilia.

Occurs in May and June on the trunks of fir-trees in the north of England and Scotland. Herr Richter found the larvæ under the bark of dead fir-trees, in the autumn.

5. **augustella**, Hüb. Tin. 177 (1801).—*angusta*, Haw.—*angustella*, Step.—*mæstella*, Hüb.—var. *albimaculea*, Haw.; Step.; Sta.—*funestella*, Dup. xi. pl. 298. f. 12.—*luctuosella*, Dup. Alis anticis saturate fuscis, fascia prope basim, ad dorsum latiore, fascia media in plicâ attenuata, macula minore dorsi, maculaque majore posteriore costæ apicem versus, dilute luteis; (variat, fasciis angustioribus, macula costali minore, albido-luteis.) Exp. al.  $5-5\frac{1}{2}$  lin.

Back of the head dark fuscous. Front of the head and face whitish. Palpi dark fuscous, the end of the second and third joints whitish. Antennæ white, annulated with dark fuscous, the tip entirely white. Anterior wings dark fuscous, with a fascia not far from the base, broadest on the inner margin, a second fascia in the middle rather attenuated on the fold, a small spot on the inner margin, and a larger spot on the costa posterior to it pale yellow; cilia fuscous. Posterior wings greyish-fuscous, with paler cilia.

In the variety *albimaculea*, the fasciæ are narrower, the second more attenuated in the fold, the costal spot is smaller, and fasciæ and spots are whitish-yellow.

Common in June on the trunks of trees in Hyde Park; the typical form of the species is comparatively scarce in this country.

6. **Woodiella**, Curt. B. E. fo. 304 (1830); Step. Alis anticis aurantiis, maculis duabus basi, tertia oblonga in medio dorsi, quarta cuneiformi costæ pone medium, margineque postico saturate fuscis. Exp. al.  $6\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi greyish-ochreous; tip of the terminal joint fuscous. Antennæ unicolorous dark fuscous. Anterior wings bright orange, rather paler towards the inner margin, with five dark fuscous spots, viz. two at the base (one above the fold, the other on the inner margin), an oblong one on the middle of the inner margin, one posteriorly attenuated on the costa beyond the middle, and a larger irregular one, commencing before the anal angle, occupies the

apex of the wing; in each of these spots are a few iridescent scales; cilia fuscous. Posterior wings dark-fuscous, with paler cilia.

In Mr. Curtis's collection; taken in June, 1829, by Mr. R. Wood, on Kersall Moor, near Manchester.

7. **grandis**, Desvignes, Entom. 342 (1842). Alis anticis flavis, macula saturate fusca basali per costam anguste *usque ad medium producta*, costa anguste pone medium saturate fusca, macula costæ mediæ, *maculaque costæ pone medium introrsum spectante dilute luteis*, dorso anguste, margine postico late saturate fuscis, *macula triangulari flava dorsali pone medium*, striga basim versus, striis tribus longitudinalibus in medio disci cæruleis. Exp. al.  $6\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi yellow; terminal joint internally with a fuscous band. Antennæ dark fuscous, the tips white. Anterior wings deep yellow, inclining to orange, with a dark fuscous blotch at the base, continued narrowly along the costa *to a little before the middle*; beyond the middle the costa is again dark fuscous to near the apex; in the middle of the costa is a small *pale yellow* spot, and a *longer oblique one pointing inwardly lies beyond the middle of the costa*; the inner margin from near the base narrowly, and the hinder margin broadly, are dark fuscous; *before the anal angle is a triangular bright yellow spot*; not far from the base is a slender bluish striga, and on the disc in the middle are three short longitudinal bluish streaks margined with dark fuscous; cilia dark fuscous. Posterior wings rather dark fuscous, with paler cilia.

In the collections of Mr. Desvignes and Mr. Shepherd; three specimens were taken in Bewdley Forest, by Mr. E. Baugh.

8. **formosella**, W. V. 140. 47 (1776); Fab.; Hüb. Tin. 248; Treit.; Dup. Alis anticis luteis, macula parva obliqua dorsi ante medium, maculaque majore costæ, luteo-brunneis, utrinque tenuissime albo-marginatis, macula postica costali luteo-brunneo. Exp. al. 6 lin.

Head and face dark fuscous. Palpi bright yellow; terminal joint white, with a black line externally, and a black ring below the apex. Antennæ white, annulated with black. Anterior wings yellow, with yellowish-brown markings, first, a small blotch on the inner margin near the middle, preceded by a short white streak, and followed by a longer curved white streak; on the costa before the middle is an oblique blotch reaching to the anal angle, it is preceded by a slender rather curved white streak (which does not touch the costa, and terminates on the fold), and is followed by a pale yellow streak (expanded on the costa and not reaching half across the wing); a third yellowish-brown blotch lies on the costa before the apex; cilia pale yellow. Posterior wings greyish-fuscous, with paler cilia.

Taken by Mr. Robertson on palings at Wanstead; appears in July.

9. **lunaris**, Haw. L. B. 556 (1829); Step.; Curt. B. E. fo. 543.

—*Metznerella*, Treit.—*Begrandella*, Dup. Alis anticis dilute luteis, costa dorsoque anguste, margine postico late, saturate luteis, costa ipsa usque pone medium saturate fusca, macula dorsi pone medium triangulari, apice postice producto, nigra. Exp. al. 5 lin.

Head and face white, mixed with dark fuscous. Palpi pale fuscous, internally whitish; terminal joint whitish, with a fuscous ring before the apex. Antennæ whitish, annulated with dark fuscous. Anterior wings pale yellow, with the costa and inner margin rather narrowly, and the hinder margin broadly, deep yellow; the extreme costa is dark fuscous to beyond the middle; on the inner margin beyond the middle is a triangular black spot, of which the apex is produced posteriorly parallel to the hinder margin; cilia pale yellow. Posterior wings rather pale grey, with pale greyish-fuscous cilia.

Found in various localities on the trunks of trees and palings, in July and August.

10. **Lambdella**, Don. B. I. ii. 57 (1792); Step.; Curt.—*Lambda*, Haw. Alis anticis dilute luteis, costa anguste, dorso margineque postico late saturate luteis, costa ipsa usque pone medium nigra, macula magna in medio dorsi fere triangulari, apice postice producto, nigra. Exp. al.  $7\frac{1}{2}$  lin.

Head and face pale yellowish, mixed with dark fuscous. Palpi dark fuscous, internally pale yellowish; terminal joint pale yellowish, with a ring at the base and a ring before the apex dark fuscous. Antennæ whitish, annulated with dark fuscous. Anterior wings pale yellow, with the costa narrowly and the inner and hinder margins broadly deep yellow; the extreme costa is black to beyond the middle; on the middle of the inner margin is a large somewhat triangular black spot, with the apex pointing posteriorly; cilia pale yellow. Posterior wings dark greyish-fuscous, with paler cilia.

Scarce; occurs in June and July; sometimes met with at Charlton; originally found in plenty in a furze-bush in Epping Forest.

11. **subaquilea** (Edl.), Sta. Cat. p. 14 (1849). Alis anticis dilute ochreis, paullulum fusco-suffusis, puncto plicæ et stria disci ante medium, puncto dorsi, punctisque duobus disci pone medium saturate fuscis. Exp. al. 6 lin.

Head and face greyish-ochreous. Palpi pale fuscous, internally pale ochreous. Antennæ fuscous. Anterior wings pale ochreous, rather suffused with fuscous, with a dark fuscous spot on the fold, a dark fuscous streak above it before the middle, and with three dark fuscous spots beyond the middle, one on the inner margin, and two almost united on the disc; beyond is a fuscous blotch at the anal angle; the hinder margin is spotted with dark fuscous; cilia pale ochreous. Posterior wings pale grey, with paler cilia.

Occurs on heaths in the north of England, in May and June.



12. **Panzerella**, Step. II. iv. 292 (1834). Alis anticis dilute ochreis, fusco-suffusis; palpis *brevibus* dilute ochreis. Exp. al.  $7\frac{1}{2}$  lin.

Head and face pale greyish-ochreous. Palpi *short*, pale ochreous. Antennæ pale ochreous, annulated with fuscous. Anterior wings pale ochreous, suffused with fuscous; cilia paler. Posterior wings greyish-fuscous, with paler cilia.

Not common; appears in June and July; has occurred at West Wickham Wood, and near Lewes.

13. **tinctella**, Treit. E. S. ix. 2. 21 (1833); Dup. xi. pl. 299. f. 7; Zell.—*lutarella*, Step.—*arietella*, Sta. Alis anticis *dilute ochreis*, paululum fusco-suffusis, præcipue costam versus; palpis *longis*, *dilute* ochreis, articulo tertio *fuscescente*. Exp. al. 7 lin.

Head and face pale ochreous. Palpi *long*, *pale* ochreous, terminal joint with a *slight fuscous tinge*. Antennæ whitish-ochreous. Anterior wings *pale ochreous*, rather suffused with fuscous, especially along the costa and towards the apex; cilia ochreous, with a slight fuscous tinge. Posterior wings dark greyish-fuscous, with paler cilia.

Not uncommon in May and June, in West Wickham Wood, among oaks.

14. **unitella**, Hüb. Tin. 147 (1801); Step.; Sta.—*fusco-aurella*, Haw.—*arietella*, Zell. Alis anticis *aureo-brunneis*, posticis nigricantibus, palpis *longis* ochreis, articulo tertio *saturate fusco*. Exp. al.  $6\frac{1}{2}$  lin.

Head and face dark yellow. Palpi *long*, bright ochreous; terminal joint *dark fuscous*. Antennæ dark fuscous. Anterior wings unicolorous *golden-brown*; cilia the same colour, with a slight fuscous tinge. Posterior wings dark fuscous, almost black, with paler cilia.

Not uncommon in August, in old hedges. Mr. Wing detected the larva last spring, feeding in old pea-sticks; it became full-fed in May.

15. **flavifrontella**, Hüb. Tin. 126 (1801); Treit.; Step.; Fab.? Alis anticis *nitidis griseo-fuscis*, punctis tribus fere obsoletis saturate fuscis. Exp. al. 10 lin.

Head and face *yellow*. Palpi fuscous. Antennæ pale fuscous. Anterior wings *shining greyish-fuscous*, with three rather obsolete darker spots, one on the disc before the middle, one almost beneath it on the fold, and one on the disc beyond the middle; cilia fuscous. Posterior wings greyish-fuscous, with paler cilia.

Not scarce in old hedges in June; it appears to frequent the hedge-roses.

16. **fuscescens**, Haw. L. B. 555 (1829); Step. Alis anticis dilute ochreis, *fusco valde suffusis*, punctis tribus saturate fuscis (uno disci, altero plicæ vix posteriore, ante medium, tertio majore disci pone medium). Exp. al. 5 lin.

Head dark fuscous. Face pale brownish-ochreous. Palpi fuscous; tip of the terminal joint pale ochreous. Antennæ pale fuscous. An-

terior wings pale ochreous, *almost entirely suffused with fuscous*, with three dark fuscous spots, one on the disc, one on the fold rather posterior before the middle, and a larger one on the disc beyond the middle; cilia fuscous. Posterior wings pale greyish-fuscous, with paler cilia.

Very abundant in old hedges in July and August.

17. **pseudo-spretella**, Sta. Cat. p. 14 (1849). Alis anticis dilute ochreis, *fusco valde suffusis*, punctis tribus saturate fuscis (uno disci, altero plicæ vix posteriore ante medium, tertio disci pone medium); *marginè postico, apiceque costæ saturate fusco-punctatis*. Exp. al. 10 lin.

Head brownish-ochreous. Face pale brownish-ochreous. Palpi pale ochreous, internally spotted with dark fuscous. Antennæ fuscous. Anterior wings pale ochreous, *much suffused with fuscous*, with three dark fuscous spots, one on the disc, one on the fold hardly posterior to it before the middle, and one on the disc beyond the middle; *the hinder margin and apex of the costa are spotted with dark fuscous*; cilia ochreous-fuscous. Posterior wings whitish-grey, with paler cilia.

Abundant in London and in many parts of the country, in July and August. Mr. H. Doubleday sent me a number of the larvæ last January, feeding on dry peas.

## Genus XXII. **ÆGOCONIA.**

ÆGOCONIA, Guenée in lit. *Æcophora* p., Zell.

Capilli depressi, *postice suberecti*. Ocelli nulli. Antennæ *crassiusculæ*, articulo basali incrassato. Haustellum mediocre, squamatum. Palpi maxillares breves, filiformes. Palpi labiales reflexi, compressi, articulo terminali tenui, acuto. Alæ elongatæ, posteriores angulo anali distincto, plaga basali nuda *nulla*; anteriores: venæ apicalis ramus inferior *supra* apicem exit; venæ subdorsalis *furcata*; posteriores: cellula costalis *elongata*, postice *attenuata*; vena apicalis *furcata*; e venula transversa vena unica procedit.

Head smooth, *behind rather rough*. Ocelli none. Antennæ *rather thick*, with thickened basal joint. Tongue moderately long, clothed with scales. Maxillary palpi short, filiform. Labial palpi reflexed, compressed; terminal joint slender, pointed. Wings elongate; the posterior with distinct anal angle, with *no bare basal patch*. In the anterior wings the lower branch of the apical vein runs into the costa before the apex; the subdorsal vein is *furcate*; in the posterior wings the *elongate* costal cell is posteriorly attenuated; the apical vein is *furcate*, and a single vein proceeds from the transverse vein.

Only one species is known in this genus, which, from its habits, I had anticipated would be congeneric with *Endrosis fenestrella*; the above characters sufficiently distinguish it.

1. **quadripuncta**, Haw. L. B. 557 (1829); Step.? *-bifasciella*, Step.—*Kindermanniella*, Zell. Alis anticis saturate fuscis, basi, macula obliqua costæ ante medium, fascia recta dentata in medio, maculis oppositis (costali majore) apicem versus dilute luteis. Exp. al.  $6\frac{1}{2}$  lin.

Head dark fuscous. Face pale yellowish. Palpi pale yellowish; the terminal joint with a faint fuscous ring at the base. Antennæ fuscous, the tips pale yellowish. Anterior wings dark fuscous, with the extreme base, a rather oblique blotch on the costa near the base, a nearly straight but indented fascia in the middle, and two opposite spots (of which the larger is on the costa) towards the hinder margin, pale yellowish; cilia pale grey. Posterior wings whitish-grey, with paler cilia.

Sometimes occurs in houses, in July and August.

#### Genus XXIII. **ENDROSIS.**

*Endrosis* p., Hüb. V. 401 (1816). *Oecophora* p., Zell.

Capilli appressi, fronte lata. Ocelli nulli. Antennæ setaceæ, articulo basali elongata, subclavato. Haustellum mediocre, squamatum. Palpi maxillares breves, filiformes. Palpi labiales reflexi, compressi, articulo terminali tenui, acuto. Alæ elongatæ, anteriores subtus penicillo *nullo*, posteriores angulo anali distincto, *plaga basali nuda*; anteriores: venæ apicalis ramus inferior *supra* apicem exit; medianæ ramus primus a secundo valde distat; subdorsalis simplex sed furcata indicata; posteriores: cellula costalis *abbreviata* (ante medium venæ subcostalis subito definit); e venula transversa vena unica procedit; vena apicalis simplex.

Head smooth; the forehead broad. Ocelli none. Antennæ setaceous, with the basal joint elongate, subclavate. Tongue of moderate length, clothed with scales. Maxillary palpi short, filiform. Labial palpi reflexed, compressed; the terminal joint slender, pointed. Wings elongate; the anterior with *no brush* beneath; the posterior with distinct anal angle, *with a naked patch at the base*. In the anterior wings the lower branch of the apical vein runs into the costa *before* the apex; the first branch of the median vein is remote from the second; the subdorsal vein is simple, but there are indications of a fork; in the posterior wings the costal cell is *abbreviated*, ceasing abruptly in the middle of the subcostal vein; a single vein proceeds from the transverse vein; the apical vein is simple.

There is only one species in this genus; if a rarity it would be considered extremely beautiful, but unfortunately being excessively abundant, and in all our houses, it is despised for less beautiful insects of greater rarity. It is however rarely seen in good condition, which may account for the neglect it experiences,

being an extremely active insect, flying about our rooms at night, getting into the milk (thence called *lacteella*), and in the daytime sitting in the windows (whence the name *fenestrella*); it is relentlessly pursued by careful housekeepers as a *clothes-moth*, its conspicuous white head causing it to be easily observed; whilst the true culprits, *Tinea pellionella* and *biselliella*, remain unhurt in their places of concealment. The larva of *E. fenestrella* feeds on various dry goods, peas, seeds, etc., and, according to Madame Lienig, even on salt. I am not aware that it attacks clothes of any kind; the notices in previous writers to that effect having been copied from Linnaeus, who, if this be his *sarcitella*, must have fallen into some similar error, as he made with respect to his *vestianella*.

1. **fenestrella**, Scop. F. C. 252. 653 (1763).—*lacteella*, W. V.—*lacteella*, Lienig.—*Betulinella*, Hüb. Tin. 20. 448; Treit.; Dup.—*sarcitella*, Lin.? Step.? Curt.?—*sarcitea*, Haw.?—*domesticella*, Scop.? Alis anticis griseis fusco-ncbulosis, basi alba, punctis disci saturate fuscis. Exp. al.  $7\frac{1}{2}$ –9 lin.

Head and face white. Palpi white; terminal joint with a ring at the base and another before the apex, black. Antennæ fuscous. Anterior wings dirty grey, clouded with fuscous, with the extreme base white; beyond is a moderately broad fuscous fascia, a fuscous blotch is on the costa beyond the middle, a smaller one is above the anal angle, and another lies in the apex of the wing, preceded by an indistinct oblique whitish fascia; a dark fuscous spot on the disc, and one beyond it on the fold are before the middle of the wing, two larger dark fuscous spots are on the disc beyond the middle; the hinder margin and apex of the costa are spotted with whitish-grey; cilia greyish-fuscous. Posterior wings whitish-grey, with paler cilia.

Abundant in houses throughout the year; and during summer, on the trunks of trees near houses. The larva may likewise be found throughout the year, feeding on various dry goods.

#### Genus XXIV. BUTALIS.

BUTALIS, Treit. E. S. ix. 2. 108 (1833). *Astyages* p., Step. *Butalis* p., Dup. *Cecophora* p., Zell. *Oxybelia* p. et *Galanthia* p., Hüb.

Caput obtusum, retractum, squamis appressis. Ocelli nulli. Antennæ articulis confertis, ♂ pubescente-ciliatæ, vix sub apicem serrulatæ. Haustellum mediocre, squamatum. Palpi breviusculi, adscendentes, subcompressi, acuminati. Alæ elongatæ, anteriores subtus penicillo basali; posteriores acuminatæ; anteriores: infra venam apicalem venæ tantum quatuor e cellula discoidali prodeunt; posteriores: e venula transversa vena unica procedit.

Head *obtuse, retracted*, with appressed scales. Ocelli none. Antennæ *with thickly-set joints*, in the ♂ pubescent-ciliated, before the apex slightly serrated. Tongue of moderate length, clothed with scales. Palpi *rather short*, ascending, rather compressed, acuminate. Wings elongate; the anterior beneath with a brush at the base; the posterior acuminate. In the anterior wings only *four* veins proceed from the discoidal cell below the apical vein; in the posterior wings a single vein proceeds from the transverse vein.

The two last species I have placed in this genus, exhibit several discrepancies: in *torquatella* the anterior wings are *oblong*; the apex of the posterior wings is *obtuse*; the tongue is *naked*; the shorter palpi are not ascending, with the apex almost obtuse. *Incongruella* has the antennæ rather thick, *five* veins from the discoidal cell of the anterior wings to the hinder margin, and *two* veins from the transverse vein of the posterior wings.

The remaining species form an extremely natural genus, of which the most remarkable peculiarity is the position in which the perfect insects sit when at rest; the wings being almost folded round the short thick body, meeting behind it nearly in a point, which the thick blunt head of the insect renders more prominent; they frequent grassy places and are rather active, flying close to the ground; the females of most of the species have a pale spot on the underside of the abdomen. Of none, excepting *Chenopodiella*, is the larva known; of that species the larva feeds in a web between united leaves of *Chenopodium* and *Atriplex*, where it spins a white oval cocoon previous to its transformation; it only frequents those plants which grow in sheltered situations.

There seems to be a great variety of closely allied species on the continent, but only seven of the typical form of the genus have occurred in this country; they may be arranged as follows:—

*a.* Anterior wings unicolorous. Species 1, 2, 4.

*a a.* Anterior wings with scattered whitish scales, not forming distinct spots. Species 3, 5.

*a a a.* Anterior wings with distinct white or whitish spots. Sp. 6, 7.

1. **grandipennis**, Haw. L. B. 536 (1829); Step. Alis anticis viridi-fuscis, postice squamis sparsis albidis. Exp. al. ♂  $8\frac{1}{2}$ , ♀ 7 lin.

Head, face, palpi, and antennæ dark fuscous. Anterior wings greenish-fuscous, posteriorly with a few whitish scales; cilia pale greenish-fuscous. Posterior wings grey, with pale fuscous cilia. Abdomen of the ♀ beneath with a large dirty yellow spot.

Common on heaths, among furze-bushes in May and June.

2. **fusco-ænea**, Haw. L. B. 537 (1829); Curt.; Step.; Sta. Alis anticis viridi-æneis, postice fusco-tinctis. Exp. al. 7 lin.

Head and face dark brownish-bronze. Palpi and antennæ dark fuscous. Anterior wings *bronzy-green*, posteriorly a little darker; cilia paler. Posterior wings fuscous, with paler cilia.

A scarce species, appearing in June; has occurred near Grasington, Yorkshire.

3. **senescens**, Sta. Ent. Trans. i. n. s. 22 (1850).—*Seliniella*, Sta. (Cat.) Alis anticis saturate viridi-fuscis, squamis sparsis numerosis albidis, præcipue apicem versus. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, palpi, and antennæ dark greenish-fuscous. Anterior wings dark greenish-fuscous, with numerous scattered whitish scales, especially towards the apex; cilia fuscous. Posterior wings dark greyish-fuscous, with paler cilia. Abdomen of the ♀ beneath with a large white spot.

Common on the downs at Mickleham, in July.

4. **fusco-cuprea**, Haw. L. B. 537 (1829); Curt.; Step.; Sta. Alis anticis saturate viridi-fuscis, *squamis albis nullis*. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, palpi, and antennæ dark greenish-fuscous. Anterior wings dark greenish-fuscous, *with no white scales*; cilia fuscous. Posterior wings dark greyish-fuscous, with paler cilia.

Formerly taken by Mr. Sircom, near Brislington; perhaps not specifically distinct from the preceding.

5. **Cicadella**, Zell. Isis, 1839. p. 193. Alis anticis fuscis, *olivaceo-lineis*, squamis sparsis albis, *maculam dorsali* basim versus, *maculam dorsali* in medio, *striamque apicis*, formantibus, *stria plicæ* interdum obsoleta *alba, luteave*. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, palpi, and antennæ greyish-fuscous. Anterior wings fuscous, with *a slight olivaceous tint*, with numerous scattered white scales, forming *a spot on the inner margin* near the base, *another on the inner margin* about the middle, and generally *a short streak towards the apex*; *along the fold* is usually *a white or yellowish streak*; cilia fuscous. Posterior wings greyish-fuscous, with paler cilia.

A single specimen, taken by Mr. Dunning, at Brandon, in Suffolk, in July.

6. **variella**, Step. II. iv. 274 (1834).—*inspersella*, Zell.—*picæpennis*, Haw. ? Step. ? Alis anticis nigrescentibus, squamis sparsis albidis, puncto plicæ pone medium, punctoque ad angulum analem albis. Exp. al. 5 lin.

Head, face, palpi, and antennæ blackish. Anterior wings blackish, with a few scattered white scales, a white spot on the fold beyond the middle, and another at the anal angle; cilia dark grey. Posterior wings very dark grey, with fuscous cilia.

Frequents sand-pits in the south of England, in June.

7. **Chenopodiella**, Hüb. Tin. 320 (1816); F. v. R. pl. 71. pl. 72. f. 1; Zell.—*tristella*, Treit.; Dup.—*variella*, W. V. ?—*cylind-*

*drea*, Haw.?—*cyliindrella*, Step.? Alis anticis nitidis saturate fuscis, maculis tribus *lutescentibus* prope dorsum. Exp. al. 7 lin.

Head and face dark fuscous. Palpi whitish, with a ring at the end of the second joint, and another at the end of the terminal joint dark fuscous. Antennæ dark fuscous. Anterior wings shining dark fuscous, with three *yellowish* spots near the inner margin, one before the middle connected with the base by a narrow yellowish streak along the fold, another nearly in the middle, and the third close beyond it at the anal angle; cilia dark fuscous. Posterior wings dark greyish-fuscous, with dark fuscous cilia.

Occurs from June to October, in waste ground, among *Chenopodium* and *Atriplex*; the larva feeding on those plants from April to August.

8. **torquatella**, Lienig et Zell. Isis, 1846. p. 279.—*fuscifrontella*, Sta. Alis anticis saturate fuscis, maculis tribus dilute luteis, *una plicæ ante medium* (obsoletius dorsum versus producta), altera dorsali ad angulum analem, tertia posteriore costali. Exp. al. 5 lin.

Head, face, palpi, and antennæ dark fuscous. Anterior wings dark fuscous, with three pale yellowish spots, one *on the fold before the middle* (indistinctly produced towards the inner margin), one on the inner margin at the anal angle, and one, posterior to it, on the costa; cilia pale fuscous, the tips whitish. Posterior wings pale greyish-fuscous, with paler cilia.

Among mixed underwood at Torwood, and near Kilmun, in July.

9. **incongruella**, Sta. Cat. p. 15 (1849). Alis anticis nitidulis fuscis. Exp. al. 5 lin.

Head and face dark fuscous. Palpi rather paler. Antennæ greyish-fuscous. Anterior wings rather glossy fuscous, with paler cilia. Posterior wings pale grey, with paler cilia.

Not scarce in March and April, on the moors in the north of England.

## Genus XXV. PANCALIA.

*Pancalia* p., Curt. B. E. fo. 304 (1830); Step. *Chrysoesthia* p., Hüb. *Ecophora* p., Treit.; Dup.; Zell.; Zett.

Caput *retractum*, capillis appressis, fronte obtusa. Ocelli nulli. Antennæ: articulis *confertis*, compressis, apicem versus attenuatæ. Haustellum medioere. Palpi reflexi, articulo secundo compresso, lævi, articulo terminali acuto. Alæ elongatæ, apice producto, posteriores angulo anali obtuso; anteriores: cellula discoidalis angusta, valde elongata; venæ apicalis ramus inferior supra apicem exit;

vena subdorsalis *simplex*; posteriores: e venula transversa vena *nica* procedit.

Head retracted, with appressed scales, in front obtuse. Ocelli none. Antennæ with thickly-set, compressed joints, attenuated towards the apex (in one continental species with erect projecting scales in the middle, *Nodosella*). Tongue of moderate length, with a few scales towards the base. Palpi reflexed; the second joint compressed, smooth; the terminal joint pointed. Wings elongate, with the apex produced; the posterior with obtuse anal angle. In the anterior wings the narrow, discoidal cell is extremely elongate; the lower branch of the apical vein runs into the costa before the apex; the subdorsal vein is *simplex*; in the posterior wings a *single vein* proceeds from the transverse vein.

We have but two species of this genus in this country; they are exceedingly similar, the main point of difference being in the antennæ. A third species is known on the continent, also differing in the antennæ. The larva of none of the species are known; Ratzeburg, it is true, says of *Leuwenhoekella*, "bred by Herr Zebe from the bark of larch-trees," but in this must be some mistake, as the perfect insects are not found amongst trees, but frequent open flowery places amongst short grass.

1. **Latreillella**, Curt. B. E. fo. 304 (1830); Step.; Sta. Alis anticis saturate aurantiis, basi, costa, dorso, margineque postico saturate fuscis, maculis tribus costæ (tertia ad costam dilute luteo-alba) duabus plicæ, unaque dorsi viridi-aureis; *antennis totum fuscis*. Exp. al. 6 lin.

Head and face very dark bronzy-green. Palpi dark fuscous, internally dirty whitish. *Antennæ entirely dark fuscous*. Anterior wings deep orange, with the base, costa, inner and hinder margins dark fuscous, with six golden-green spots, the first rather transverse on the costa near the base, the second on the costa before the middle, the third elongated, pointing inwardly, near the costa towards the apex (produced on the costa as a pale yellowish-white spot), the fourth on the fold below the first costal spot, and almost united with it, the fifth on the fold before the middle is smaller, and the sixth is larger on the inner margin beyond the middle; above the anal angle are some golden-green scales not forming a definite spot; cilia fuscous. Posterior wings fuscous, with a slight bronzy tinge, with pale fuscous cilia.

A specimen is in Mr. Curtis's collection; and I have seen a few others.

2. **Leuwenhoekella**, Lin. F. S. 1400 (1761); W. V.; Fab.; Haw.; Step.; Zett.; Zell.; Sta.—*Schmidtella*, Treit.; Dup.—*metal-  
lella*, W. V.?—*Schwarzella*, Fab.? Alis anticis saturate aurantiis, basi, costa, dorso, margineque postico saturate fuscis, maculis tribus costæ (tertia ad costam dilute luteo-alba) duabus plicæ, unaque dorsi viridi-aureis; *antennis fuscis, infra apicem albis*. Exp. al. 5½ lin.



Differs only from the preceding in the antennæ, which have a *broad white ring* before the apex.

Common in dry grassy places among flowers, in May and June.

## Family VI. GLYPHIPTERYGIDÆ.

*Caput* plerisque *lævissimum*. Palpi maxillares brevissimi. Alæ anteriores oblongæ vel elongatæ, posteriores ovatæ vel lanceolatæ. *Volatus diurnus*.

*Head* mostly *extremely smooth*. Maxillary palpi very short, rarely perceptible. Anterior wings oblong or elongate; the posterior ovate or lanceolate. *Flight diurnal*.

A rather natural family, of which many of the species are of gay colours, delighting to fly in the hot sunshine. The species of the smaller genera are brilliant little insects, running about with great activity on the leaves of the plants they frequent; the species of the genus *Glyphipteryx*, remarkable for the rich colouring of the anterior wings, have the peculiarity of alternately raising and depressing their wings, as though fanning themselves, when at rest. Most of the genera appear in the summer, but some species of the genus *Acrolepia* appear at the end of autumn, and, hibernating, are met with early in spring. The larvæ of *Röslerstammia*, *Acrolepia*, and *Glyphipteryx* have been observed, but do not exhibit any peculiarity, and would readily pass for larvæ of the previous family.

### Genus I. ACROLEPIA.

ACROLEPIA, Curt. B. E. 679 (1838). *Röslerstammia* p., Zell.; Dup.

Capilli in vertice et occipite hirsuti, cæterum lævigati. Ocelli nulli.

Antennæ tenues, corpore breviores. Haustellum mediocre, nudum.

Palpi labiales arcuati, crassiusculi, subcompressi; articulo ultimo præcedentem longitudine superante, acuminato. Alæ anteriores plerumque elongatæ, posteriores ovato-lanceolatæ, longius ciliatæ; anteriores: vena apicalis simplex, infra eam rami 6, inter se distantes; cellula secundaria perfecta; submedianæ apex incrassatus; subdorsalis longius furcata; posteriores: cellula costalis elongata, subito coarctata; vena apicalis simplex, infra eam vena furcata; venæ discoidalis rami duo ultimi in furcam coaliti.

The crown and back of the head rough, the remainder smooth. Ocelli none. Antennæ slender, shorter than the body. Tongue of moderate length, naked. Labial palpi arched, rather thick, slightly compressed;

the terminal joint longer than the second, pointed. Anterior wings generally elongate (in one species oblong), the posterior ovate-lanceolate, with rather long cilia. In the anterior wings the apical vein is simple, below it are six veins at equal distances; the secondary cell is complete; the apex of the submedian vein is thickened; the subdorsal has a rather long fork. In the posterior wings the elongate costal cell is suddenly narrowed; the apical vein is simple, below it is a *furcate vein*; the two last branches of the discoidal vein are united at their origin.

I have seen but three British species in this genus, though I have no reason to doubt that *Betulella* truly belongs here; and I believe Mr. Curtis has specimens of a fifth species, which appeared to me too wasted to describe. The perfect insects appear of a very quiet disposition, more especially on their first quitting the pupa state, and are more frequently met with on the wing after hibernation; *pygmæana* will remain motionless nearly throughout the winter; *granitella* also hibernates, but I am not aware whether *perlepidella* and *Betulella* do likewise, though I think it extremely probable.

The larvæ of the two former only are known; they may be found in summer and beginning of autumn, mining the leaves of *Solanum Dulcamara* and *Linna dysenterica* respectively; *pygmæana*, from the numerous large whitish blotches it makes, being very easily detected; both species construct delicate open network cocoons.

The pale spot in the cilia of the anterior wings appears to indicate an affinity to the species of the genus *Glyphipteryx*.

The genus may be thus subdivided:—

*a.* Anterior wings oblong. Species 1.

*a a.* Anterior wings elongate. Species 2–4.

1. **perlepidella**, Sta. Cat. p. 19 (1849). Alis anticis aurantiis nigro-suffusis, fascia fere recta ante medium lutea (squamis cæruleo-griseis in medio interrupta), fascia obliqua postica lutea (squamis cæruleo-griseis valde interrupta), maculis duabus posticis costæ luteis, apice cæruleo-atro. Exp. al. 5 lin.

Head ferruginous. Face fuscous. Palpi yellowish. Antennæ yellowish, annulated with fuscous. Anterior wings orange, much suffused with black, especially towards the base and along the costa, with a pale yellow nearly straight fascia before the middle (which appears somewhat interrupted by some bluish-grey scales in the middle); beyond it is a second pale yellow fascia more obliquely placed (the central portion of which is entirely suffused with bluish-grey, leaving only a distinct pale yellow spot on each margin); beyond this are two small pale yellow spots on the costa, which soon unite, and are continued as a bluish fascia nearly across the wing; the entire apical portion of the wing is

nearly filled up with bluish-black ; cilia orange, mixed with bluish-grey. Posterior wings grey, with paler cilia.

This beautiful species is extremely rare ; a specimen recently taken at Darenth Wood, in May, is in Mr. Shepherd's collection. Mr. Douglas has a specimen, of the locality of which he is not aware.

2. **granitella**, Treit. E. S. ix. 2. 265 (1833) ; F. v. R. pl. 8 ; Zell. ; Dup. ? Alis anticis griseo, albo, fuscoque marmoratis, macula fusca dorsali ante medium, utrinque albedo-maculata, macula altera fusca, maculam parvam albam includente, ad angulum analem. Exp. al. 6 lin.

Head greyish-fusca. Face grey. Palpi grey, with two fuscous rings. Antennæ whitish, annulated with fuscous. Anterior wings marbled with grey, white and fuscous, with two more conspicuous fuscous spots on the inner margin, one before the middle reaching to the fold, with a whitish spot on each side of it, the other towards the anal angle not crossing the fold, and including a small white spot on the inner margin ; beyond the middle of the costa are four or five fuscous spots, the two last of which are preceded by whitish spots ; cilia greyish-fuscous. Posterior wings grey, with paler cilia.

Appears in July among *Inula dysenterica*, continuing throughout the autumn, hibernated specimens occurring as late as June, when the larvæ are already nearly full-fed, mining the leaves of that plant.

3. **pygmæana**, Haw. L. B. 438 (1812).—*autumnitella*, Curt.—*LeFebvriella*, Dup. xi. pl. 290. f. 11.—*Heleniella*, Zell. ; H.-S.—*Vigeliella*, Dup. ? Alis anticis brunneo albidoque marmoratis, macula triangulari squamas nonnullas nigras includente, in medio dorsi, albida, macula obliqua costæ pone medium nigra, stria postica disci nigra. Exp. al.  $5\frac{1}{2}$  lin.

Head ferruginous. Face fuscous. Palpi whitish, with two faint fuscous rings. Antennæ whitish, annulated with fuscous. Anterior wings marbled with pale brown and whitish, with a rather conspicuous triangular whitish spot, including some black scales on the middle of the inner margin ; on the costa a little beyond the middle is a short oblique black spot ; towards the apex are three small whitish spots on the costa and two on the inner margin ; on the disc near the apex is a short black streak, followed by some bluish-grey scales ; cilia fuscous, with a pale yellowish dash in the middle of the hinder margin. Posterior wings grey, paler at the base, with paler grey cilia.

Appears in the autumn, but rarely met with till the spring, when they are occasionally seen flying on hot sunny afternoons. I well remember finding three specimens on such an afternoon, on the 3rd of April, 1848. The larva may be met with from July to September, mining the leaves of *Solanum Dulcamara*,

rather gregariously, there being generally twenty or more on one plant.

4. **Betulella**, Curt. B. E. fo. 679 (1838).

Taken by Mr. Dale on birch-trees at Castle Eden Dene, in August; unique in his collection.

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Genus II. **RÖSLERSTAMMIA.**

*Röslerstammia* p., Zell. Isis, 1839. p. 202; Dup. *Adela* p., Treit.

*Capilli in occipite et vertice hirsuti*, cæterum decumbentes. Ocelli nulli.

Antennæ *crassiusculæ*, filiformes, microscope pubescente-ciliatæ, *corpore longiores*. Haustellum mediocre, nudum. Palpi labiales, filiformes, mediocres, penduli vel subporrecti, articulo tertio præcedentem longitudine et crassitie subæquante, acuto. Alæ oblongæ, posteriores ovatæ, ciliis mediocribus; anteriores: vena apicalis *furcata*, infra eam rami 5 inter se distantes; cellula secunda bene indicata; submedianæ apex incrassatus; vena subdorsalis longe furcata; posteriores: cellula costalis elongata; vena apicalis simplex, infra eam venæ duæ simplices; venæ discoidalis rami duo ultimi furcam formant.

*The crown and back of the head rough*, the remainder with decumbent scales. Ocelli none. Antennæ *rather thick*, filiform (viewed through a lens, with pubescent ciliations), *longer than the body*. Tongue of moderate length, naked. Labial palpi filiform, of moderate length, drooping or rather porrect; the third joint nearly equal in length and thickness to the second, pointed. Wings oblong, the posterior ovate, with moderate cilia. In the anterior wings the apical vein is *furcate*, below it are five veins at equal distances; the secondary cell is well indicated; the apex of the submedian vein is thickened; the subdorsal vein has a long fork. In the posterior wings the costal cell is elongate; the apical vein is simple, below it are two simple veins; the two last branches of the discoidal vein form a fork.

There is only one species in this genus, which has some resemblance to an *Adela*.

1. **Erxlebella**, Fab. Man. ii. 256. 27 (1787).—*fusco-cuprella*, Haw.; Step.—*chrysitella*, Treit.—*æncella*, Dup.?—*Erxlebeniella*, Lie-nig? Alis anticis nitide cupreis, dorsum versus dilutioribus. Exp. al.  $6\frac{1}{2}$  lin.

Head dark yellow. Face and palpi pale yellow. Antennæ black, a short space before the apex white. Anterior wings bright-coppery, towards the inner margin rather paler; cilia coppery-grey. Posterior wings violet-fuscous, with paler cilia.

Appears in June, on heaths, but hitherto very scarce. (Ac-

cording to Tischer, the larva feeds on heath, drawing the leaves together by its silken threads, and is full-grown at the end of June; the perfect insect appears in July or August. Lienig says that the larva lives on the underside of the leaves of the lime in May and September. From the habitats of the insect with us, Tischer's account is more probably correct.)

### Genus III. GLYPHIPTERYX.

*Glyphipteryx* p., Hüb. V. 421 (1816). *Echmia* p., Treit.; Dup.; Zell. *Ecophora* p., Zett. *Heribeia* et *Callisto* p., Step.

Caput lævigatum. Frons lata. *Ocelli magni*, pone oculos. Antennæ tenues, corpore breviores, articulis distinctis. Haustellum mediocre, nudum. Palpi labiales arcuati, crassiusculi, infra setoso-pilosuli, articulo tertio acuminato, præcedentem longitudine æquante. Alæ oblongæ vel elongatæ, mediocriter ciliatæ, posteriores subovatæ vel lanceolatæ; anteriores: vena apicalis simplex ante apicem excurrit, infra eam rami 6 discreti; cellula secundaria bene indicata; submediana rarius incrassata; subdorsalis breviter furcata; posteriores: cellula costalis elongata; vena apicalis simplex, infra eam venæ duæ separatæ.

Head smooth. Forehead broad. *Ocelli large*, behind the eyes. Antennæ slender, shorter than the body, with distinct joints. Tongue of moderate length, naked. Labial palpi arched, rather thick, beneath with rather bristly hairs; terminal joint pointed, as long as the second. Wings oblong or elongate, with moderately long cilia; the posterior rather ovate, or lanceolate. In the anterior wings the simple apical vein runs into the costa before the apex; below it are six separate veins; the secondary cell is well indicated; the submedian vein is rarely thickened towards the apex (slightly so in *fuscoviridella* and *Thrasonella*, but not at all in the other species); the subdorsal vein has a short fork (in *fuscoviridella* and *Thrasonella*, being simple in the remaining species). In the posterior wings the costal cell is elongate; the apical vein is simple; below it are two separate veins.

It is difficult to subdivide this genus, the change from one species to another being so gradual; thus *fuscoviridella* agrees with *Thrasonella*, in having the antennæ pubescent; yet *Thrasonella* differs from *fuscoviridella* in having the anterior wings slightly retuse below the rounded apex, in which respect it agrees with *Haworthana*, *equitella*, etc.; again *Haworthana* has rather ovate posterior wings, with only moderate cilia; whereas *equitella* and the following species have lanceolate posterior wings with longer cilia.

In habit all the perfect insects of this genus are true day-fliers, flying in the sunshine from May to July; and when at rest alternately raising and depressing the wings, which characteristic may easily be observed with *Thrasonella*, which may be found swarming amongst rushes everywhere in June; *fuscoviridella* has the same peculiarity, though in a less degree than the other species, it frequents flowery places among short grass, in May and June; the little *Fischeriella* shows no especial partiality for any particular plant, but I have often observed it sitting on the flowers of *Anthriscus sylvestris*, the white petals of which served to show off to advantage the nearly black wings of the elegant species; I have also observed it swarming round the twigs of young fir-trees.

None of the larvæ of this genus were known till Mr. Weir discovered last summer that of *equitella*, feeding inside the shoots of the *Sedum acre*; it exhibited no peculiarity in structure; the larvæ of the other species still remain undiscovered.

1. **fuscoviridella**, Haw. L. B. 569 (1829); Step.—*albicostella*, Dup. xi. pl. 302. f. 3. Alis anticis viridi-æneis, ipsa costa pone medium alba. Exp. al. 6–6½ lin.

Head and face dark bronzy-green. Palpi fuscous. Antennæ dark fuscous. Anterior wings shining bronzy-green, with the extreme costa beyond the middle white; cilia pale bronzy-green, with the tips white. Posterior wings grey, with paler cilia.

Very abundant in flowery meadows, and in open places in woods, from the middle of May to the middle of June.

2. **Thrasonella**, Scop. F. C. 253. 658 (1763); Dup. xi. pl. 304. f. 1, 2; F. v. R. pl. 83. f. 1.—*Fuesella*, Fab.—*Fyesella*, Fab.; Step.—*Seppella*, Hüb.—*triguttella*, Don.—*Aillyella*, Hüb.—*equitella*, var. *Seppella*, Treit. Alis anticis saturate viridi-æneis, strigulis quinque costæ (ad costam ipsam albis) strigulisque duabus dorsi (*prima media fere obsoleta*) cæruleo-argenteis, macula oblonga ad angulum analem atra, puncta tria violaceo-argentea includente, apice saturate fusco-squamato. Exp. al. 6–6½ lin.

Head and face dark fuscous. Palpi whitish, with two dark fuscous rings. Antennæ fuscous. Anterior wings dark bronzy-green, with five *bluish-silvery* streaks from the costa, which are white immediately on the costa, with a *faint bluish-silvery streak from the middle of the inner margin*, and a more distinct one towards the anal angle; above the anal angle is a *black blotch*, enclosing three silvery-violet spots; at the apex are a few dark fuscous scales; cilia greenish-bronze, with the tips whitish. Posterior wings grey, with paler cilia.

Very abundant amongst rushes in June and July, throughout the country. There is considerable diversity in the size of the

specimens, and the distinctness of the markings, but I have been unable to distinguish more than one species.

3. **Haworthana**, Step. II. iv. 262. pl. 39. f. 2 (1834).—*Zonella*, Zett. Alis anticis saturate viridi-æncis, *strigula distinctiore curvata alba in medio dorsi*, strigulis posticis quinque costæ, una dorsi ad angulum analem, *albis*, apicibus argenteis, maculis tribus supra angulum analem argenteis, apice *atro-squamato*. Exp. al. 6 lin.

Head and face dark fuscous. Palpi white, beneath fuscous. Antennæ fuscous. Anterior wings dark bronzy-green, *with a conspicuous curved white streak* on the middle of the inner margin; beyond are five short *white* streaks from the costa and one from the inner margin at the anal angle, all with silvery apices; above the anal angle are three silvery spots; at the apex of the wing are *a few black scales, not forming a round spot*; an inconspicuous dark hook runs through the cilia; cilia dark fuscous, the tips whitish. Posterior wings grey, with whitish cilia.

Occurs on heaths, in the north of England, in May and July.

4. **equitella**, Scop. F. C. 254. 659 (1763); Treit.; Zell.; F. v. R. pl. 82. f. 2.—*Klemannella*, Fab.—*Forsterella*, Fab.? Haw.?—*humarella*, Step.? Alis anticis saturate æneo-griseis, *basim versus dilutioribus*, strigula curvata in medio dorsi, *strigulaque opposita obliqua costæ*, distinctioribus albis, strigulis posticis quatuor costæ, una dorsi ad angulum analem, albis, apicibus argenteis, maculis duabus supra angulum analem violacco-argenteis, *puncto* apicis atro. Exp. al.  $4\frac{1}{2}$  lin.

Head dark fuscous. Face grey. Palpi white, with four black rings. Antennæ dark fuscous. Anterior wings dark bronzy-grey, *paler at the base*, with a conspicuous curved white streak from the middle of the inner margin, terminating in the middle of the wing, where it nearly meets *a conspicuous oblique white streak from the costa*; beyond the latter are four short, nearly straight, white streaks, with silvery apices, and from the anal angle is a white streak with a silvery apex, almost meeting the second costal streak; above the anal angle are two silvery-violet spots; in the apex is a round black *spot*, above which is a black hook projecting through the cilia; cilia very dark brown, tips whitish. Posterior wings grey, with a slight violet tint, with paler cilia.

Abundant at the end of June and beginning of July, flying over the blossoms of stoncrop (*Sedum acre*). The larva burrows in the shoots of that plant in May.

5. **oculatella**, Zell. Ent. Ztg. 1850. p. 157; II.-S. Tin. pl. 39. f. 265; Sta.—*Lucasella*, Dup.? Alis anticis saturate æneo-brunneis, strigula in medio dorsi *subcurvata* distinctiore alba, strigulis posticis quinque costæ, una dorsi ad angulum analem albis, apicibus argenteis, maculis tribus supra angulum analem violacco-argenteis, *puncto* apicis *atro argenteo-pupillato*. Exp. al.  $4\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi whitish. Antennæ dark fuscous. Anterior wings dark bronzy-brown, with a conspicuous *slightly*

curved white streak on the middle of the inner margin; beyond are five short white streaks from the costa with silvery apices, and a small white streak from the anal angle with its apex silvery; above the anal angle are three silvery-violet spots, and in the apex of the wing is a round black spot, with a silvery pupil; above this a little black hook projects through the cilia; cilia dark brown, the tips whitish. Posterior wings greyish-brown, with paler cilia.

Taken by Mr. Weir, near Pembury, in June, among *Eupatorium cannabinum*.

6. **Fischeriella**, Zell. Isis, 1839. p. 204.—*Röslerstammella*, F. v. R. (*desiderella*), pl. 82. f. 3; Dup.—*desideratella*, Dup.—*Forsterella*, Step.? —*Forsterella*, var.  $\beta$ . Haw.?—*simplicella*, Step.?—*cognatella*, Step.? —*equitella*, Dup.?—*Æchmiella*, Dup.? Alis anticis saturatissime æneogriseis, strigulis quinque costæ, duabus dorsi (prima in medio curvata), albis, apicibus argenteis, macula supra angulum analem violacea, puncto apicis atro. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head and face dark fuscous. Palpi white, with four black rings. Antennæ fuscous. Anterior wings very dark bronzy-grey, with two white streaks on the inner margin, the first near the middle curved and pointing towards the apex of the wing, the second at the anal angle short and nearly straight; on the costa are five white streaks, the first about the middle, placed obliquely pointing towards the anal angle, the second is less obliquely placed, and the other three are shorter and nearly straight; all these streaks have their apices silvery; above the anal angle is a violet spot, and at the apex of the wing is a round black spot, above which is a little black hook projecting through the cilia; cilia dark brown, the tips whitish. Posterior wings violet-grey, with paler cilia.

From May to July, this species is frequently abundant among flowers, in most localities.

#### Genus IV. **ÆCHMIA**.

*Æchmia* p., Zell. Isis, 1839. p. 203.

Capilli depressi. Frons lata. Ocelli nulli. Antennæ crassiusculæ, filiformes (microscope pubescentes), articulo basali brevi. Haustellum subnullum. Palpi maxillares filiformes, conniventes. Palpi labiales breves, penduli, filiformes, articulo tertio distincto acuminato. Alæ longe ciliatæ, anteriores latiusculæ ciliis valde dilatatæ, dorso dentem squamarum gerente, posteriores lanceolato-ovatæ; anteriores: cellula discoidalis obtusa, secundaria nulla; vena apicalis furcata, infra eam 5 valde distantes; submediana vix incrassata; subdorsalis longe furcata; posteriores: cellula costalis elongata, angusta; vena apicalis simplex, infra eam venæ duæ discretæ; venæ discoidalis rami duo ultimi separati.



Head smooth. Forehead broad. Ocelli none. Antennæ *rather thick*, filiform (viewed through a lens, pubescent), the basal joint short. Tongue very short, barely perceptible. Maxillary palpi filiform, connivent. Labial palpi short, drooping, filiform, the third joint distinct, pointed. Wings with long cilia, *the anterior rather broad*, appearing considerably broader from the cilia, *the inner margin bearing a projecting tooth of scales*, the posterior ovate-lanceolate. In the anterior wings the discoidal cell is obtuse; there is no secondary cell; the apical vein is forked; below it are five remote veins; the submedian is hardly thickened; the subdorsal has a long fork. In the posterior wings the costal cell is narrow and elongate, the apical vein is simple, below it are two separate veins; the two last branches of the discoidal cell are not united in a fork.

Only a single species is known in this genus, and little is known of its habits; the larva is entirely unknown.

1. **dentella**, Zell. Isis, 1839, p. 204; F. v. R. pl. 83. f. 3.—*subdentella*, Sta.—*atrella*, Step. Alis anticis saturate fuscis, albidis irratis, maculis duabus obsoletis dorsi dilutionibus, dente e medio dorsi saturate fusca. Exp. al.  $4\frac{1}{2}$  lin.

Head and face dark fuscous. Palpi grey. Antennæ fuscous. Anterior wings dark fuscous, irrorated with whitish scales, with two indistinct pale spots on the inner margin, one a little before the middle, the other at the anal angle; in the middle of the inner margin is a projecting tooth of dark fuscous scales; cilia dark fuscous. Posterior wings dark grey, with paler cilia.

Not common; occurs at Sanderstead, in May. I met with it near Chudleigh, in June, flying from a hawthorn hedge.

#### Genus V. **PERITTIA**, n. g.

Capilli depressi. Ocelli nulli. Antennæ *tenuæ*, mediocres. Haustellum mediocre, squamatum. Palpi labiales mediocres, *tenuæ*, filiformes, acuti, penduli. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ; anteriores: cellula discoidalis acuta, ex angulo suo apicali furcam in alæ apicem emittens, in costam venas duas, in marginem posticum venas tres; cellula secundaria nulla; submediana breviter incrassata; subdorsalis simplex; posteriores: cellula costalis perangusta pone medium desinens; venæ subdorsalis et mediana *furcatæ*, inter eas vena unica e venula transversa procedit.

Head smooth. Ocelli none. Antennæ *slender*, moderately long. Tongue of moderate length, clothed with scales. Labial palpi moderately long, *slender*, filiform, pointed, drooping. Wings with long cilia, the anterior elongate, the posterior lanceolate. In the anterior wings the acute discoidal cell emits from its apical angle a fork into the apex of the wing, two veins to the costa, and three to the hinder margin;

there is no secondary cell; the submedian is thickened for a short distance; the subdorsal vein is simple. In the posterior wings the very narrow costal cell terminates beyond the middle, the subdorsal and median veins are *furcate*, between them a single vein proceeds from the transverse vein.

There is only one species in this genus; it appears early in the spring, and flies willingly in the afternoon among mixed hedges; when at rest it has a singular bull-headed appearance, with a slight resemblance to a *Bulalis*. Its larva is unknown.

1. **obscurapunctella**, Sta. Zool. 1848. p. 216 f.—*oleæ*, Haw. ?—*oleella*, Step. ? Alis anticis nitidis grisco-fuscis, punctis duobus obsoletis (altero plicæ mediæ, altero posteriore disci) fuscis. Exp. al.  $4\frac{1}{2}$  lin. Head and face greyish-fuscous. Palpi paler. Antennæ fuscous. Anterior wings shining greyish-fuscous, with two indistinct fuscous spots, one in the middle on the fold, followed by a few whitish scales, the other on the disc rather beyond the middle; cilia greyish-fuscous. Posterior wings pale grey, with paler cilia.

Not scarce near London early in May; also occurs near Bristol.

#### Genus VI. **TINAGMA.**

**TINAGMA**, Dup. Cat. 361 (1844). *Microsetia* p., Step. *Aekmia* p., Zell.

Capilli depressi. Frons lata. Ocelli nulli. Antennæ breves, crassæ, valde compressæ. Haustellum nullum. Palpi maxillares breves, acuti. Palpi labiales breves, filiformes, acuti, penduli. Alæ longe ciliatæ, anteriores postice ciliis dilatatis, posteriores lanceolatæ; anteriores: cellula discoidalis acuta, ex angulo suo apicali furcam in alæ apicem emittens, in costam *venas duas*, in marginem posticum *venas tres*; cellula secundaria nulla; submediana non incrassata; vena subdorsalis crassa, *simplex*; posteriores: cellula costalis perangusta in medio desinens; venæ subdorsalis et mediana *simplices*, inter eas vena libera unica in marginem posticum exit.

Head smooth. Forehead broad. Ocelli none. Antennæ short, thick, very much compressed. Tongue none. Maxillary palpi short, pointed. Labial palpi short, filiform, pointed, drooping. Wings with long cilia, the anterior with the cilia expanded posteriorly; the posterior lanceolate. In the anterior wings the acute discoidal cell emits from its apical angle a fork into the apex of the wing, *two veins* to the costa, and *three* to the hinder margin; there is no secondary cell; the submedian vein is not thickened; the thick subdorsal vein is *simple*. In the posterior wings the extremely narrow costal cell terminates in the middle; the subdorsal and median veins are simple; between them a single free vein runs into the hinder margin.

Three closely-allied British species are known in this genus; they fly in the hot sunshine, and when they alight on a leaf run nimbly on it, frequently making short jerking movements. The position of the wings in repose is rather peculiar, as they form a very acute angle at their union over the back, as in *Cilix spinula*. None of the larvæ have yet been discovered.

1. **sericiellum**, Haw. L. B. 585 (1829); Step. — *metallicella*, Dup.; Zell.; F. v. R. pl. 84. f. 2.—Alis anticis nitidis æneo-griscis, macula parva dorsi prope basim, maculaque *major*e dorsi pone medium albidis. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi dark greenish-bronze. Antennæ dark fuscous. Anterior wings shining, bronzy-grey, with a small whitish spot on the inner margin near the base, and a large one beyond the middle of the inner margin; cilia pale bronzy-grey. Posterior wings violet-grey, with pale grey cilia.

Abundant among oaks in May.

2. **Stanneellum**, F. v. R. 245. Anm. (1840); Sta. Alis anticis nitidis *dilute* æneo-griscis, macula *obsoleta* dorsi pone medium albida. Exp. al.  $2\frac{1}{2}$ –3 lin.

Head, face, and palpi pale bronzy-grey. Antennæ dark fuscous. Anterior wings shining, *pale* bronzy-grey, with a *faint* whitish spot on the inner margin beyond the middle; cilia pale bronzy-grey. Posterior wings violet-grey, with pale grey cilia.

Occurs, with the preceding, among oaks in May, but less abundant.

3. **resplendellum** (Dougl.), Sta. Sup. Cat. p. 6. 1851.—*metall-cellula*, Sta. Alis anticis nitidis *saturatissime* æneo-griscis, macula parva dorsi prope basim, maculaque *major*e dorsi pone medium *albis*. Exp. al.  $2\frac{1}{2}$ –3 lin.

Head, face, and palpi dark bronzy-grey. Antennæ dark fuscous. Anterior wings shining, *very dark* bronzy-grey, with a small *white* spot on the inner margin near the base, and a larger *white* spot on the inner margin beyond the middle; cilia bronzy-grey. Posterior wings violet-grey, with paler cilia.

Taken at West Wickham, Dartford Heath, and near Bristol, towards the end of June, among oaks.

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## Genus VII. DOUGLASIA.

Caput lævigatum. Ocelli nulli. Antennæ crassiusculæ, alarum anteriorum *dimidium* superantes. Haustellum nudum. Palpi labiales subpenduli, squamis incrassati, apice obtuso. Alæ longe ciliatæ, anteriores *elongatæ*, posteriores *acuminatæ*; anteriores: cellula dis-

coidalis venas *tres* in costam, venam furcatam in apicem, venas *tres* in marginem posticum emittit; subdorsalis furcata; posteriores: vena discoidalis trifida, ramum unum in costam, ramos duos in marginem posticum mittens, infra eam vena unica libera.

Head smooth. Ocelli none. Antennæ rather thick, *longer than the half* of the anterior wings. Tongue naked. Labial palpi rather drooping, thickened with scales, with the apex blunt. Wings with long cilia, the anterior *elongate*, the posterior *acuminate*. In the anterior wings the discoidal cell emits from its apical angle *three* veins to the costa, a furcate vein to the apex of the wing, and three to the hinder margin; the subdorsal vein is furcate; in the posterior wings the discoidal vein is trifid, sending one branch to the costa and two to the hinder margin; below it is a single free vein.

Only one species is known in this genus, which unites the habits, as it combines the structure, of *Tinagma* and *Gracilaria*; having the anterior part of the body slightly raised in repose, yet having the sharp jerking motions of a *Tinagma*; it frequents the *Æchium vulgare* when in blossom; its larva is unknown.

1. **Ocnerostomella**, Sta. Ent. Trans. i. n. s. Proc. 6 (1850). Alis anticis nitide griseis, macula dilutiore obsoleta dorsali pone medium. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head and face shining grey. Palpi pale grey. Antennæ fuscous. Anterior wings shining grey, with an obsolete paler spot beyond the middle of the inner margin; cilia grey, mixed with paler and darker scales. Posterior wings greyish-fuscous, with greyish-ochreous cilia.

Common among *Æchium vulgare*, at the beginning of July, flying at dusk. I have taken it abundantly at Box Hill.

## FAMILY VII. ARGYRESTHIDÆ.

Capilli hirsuti, *epistomio lavigato*. Palpi maxillares nulli. Palpi labiales breviusculi, articulo terminali subacuto vel obtuso. Alæ anteriores elongatæ, posteriores lanceolatæ, longe ciliatæ.

Head rough; *the face smooth*. Maxillary palpi none. Labial palpi rather short; the terminal joint hardly acute, or obtuse. Anterior wings elongate; the posterior lanceolate, with long cilia.

The four genera in this family have considerable affinity with each other, though differing in several points; they may be readily distinguished as follows:—

*a.* Anterior wings not subfalcate.

*b.* Palpi rather short, with appressed scales; terminal joint rather pointed. 1. ARGYRESTHIA.

*b b.* Palpi shorter, thicker, and hairy. 2. CEDESTIS.

*b b b.* Palpi extremely short. 3. OCNEROSTOMA.  
*a a.* Anterior wings subfalcate. Palpi rather short and thick; the terminal joint obtuse. 4. ZELLERIA.

### Genus I. ARGYRESTHIA.

*Argyresthia* p., Hüb. V. 422 (1816); Zell. *Ederesa* (et *Argyrosetia*), Curt. *Ecophora* p., Treit.; Dup.; Zett. *Erminea* p. et *Tinea* p., Haw. *Ismene* et *Argyrosetia*, Steph.

Capilli hirsuti, epistomio lævigato. Antennæ alis anterioribus breviores (articulo basali elongato, incrassato), articulis distinctis. Haustellum breve, nudum. Palpi labiales penduli vel subporrecti, *squamis appressis*, articulo secundo apice incrassato, articulo terminali *subacuto*. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ; anteriores: venæ ex cellulæ discoidalis parte postica novem octove oriuntur, apicalis simplex vel furcata; subdorsalis simplex; posteriores: vena apicalis ante apicem exit, infra eam vena furcata, et venæ duæ simplices e venula transversa.

Head rough; the face smooth. Antennæ shorter than the anterior wings, with distinct joints; the elongate basal joint is thickened. Tongue short and naked. Labial palpi drooping or rather porrected, *with appressed scales*; the second joint with the apex thickened; the terminal joint *rather acute*. Wings with long cilia, the anterior elongate, the posterior lanceolate. In the anterior wings eight or nine veins arise from the hinder portion of the discoidal cell; the apical vein is simple or furcate; the subdorsal is simple. In the posterior wings the apical vein runs into the costa before the apex; below it are a furcate vein, and two simple veins from the transverse vein.

The perfect insects of this genus may be at once recognized when at rest, as the hind pair of legs are laid alongside of the body, which is elevated at an angle of 45°, the head of the insect being almost in contact with the substance on which it rests; they thus stand on the first *four* legs only, whence Linnæus named one of the species *tetrapodella*. The species are found in hedges, trees, and bushes, from May to September, each species generally keeping out for a long time, and, as they very readily fly, they soon get wasted. The larvæ feed in the leaf-buds, destroying or crippling the growth of a young shoot, yet the luxuriance of vegetation is so great that no apparent ill effects are produced by a considerable number of the larvæ feeding on the same plant; of some species (according to Ratzeburg) the larvæ assume the pupa-state inside the shoot, but more generally the larvæ descend by their silken threads to the ground (*nitidella* may often be seen so descending from a hawthorn hedge in May), and form on the ground amongst leaves a rather open network cocoon.

There is considerable similarity among the species, but they may be arranged in the following table:—

- a.* Anterior wings with a white streak along the inner margin, interrupted in the middle. Species 1–10.
- a a.* Anterior wings with no dorsal streak (a variety of Species 20 excepted).
- b.* Anterior wings with numerous fuscous spots, and with a transverse blotch on the disc, or fascia, beyond the middle. Sp. 11, 15, 16.
- b b.* Anterior wings without spots.
- c.* With no fascia near the base. Species 14.
- c c.* With a fascia or fasciæform blotch, near the base. Species 17–20.
- b b b.* Anterior wings of a marbled appearance. Species 12, 13.
- b b b b.* Anterior wings unicolorous. Species 21–23.
- b b b b b.* Anterior wings white, with two dark streaks from the base. Species 24.

1. **ephippella**, Fab. G. I. 297 (1776); Sta.—*Pruniella*, Hüb. Tin. 175; Treit.; Dup.; Zell.; Linn.?—*tetrapodella*, Step.—*comella*, Scop.? *Alis anticis ochreo-brunneis*, dorso albo, pone medium *fascia subobliqua* saturate fusca interrupto, strigulis tribus costæ apicem versus albis. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ white, annulated with dark fuscous. Anterior wings *ochreous-brown*, with the inner margin white, interrupted beyond the middle by a dark brown, nearly perpendicularly placed spot, which can be traced *rather obliquely* across the wing as a *fascia*, *terminating* on the costa; beyond it the inner margin is whitish to the anal angle, and on the costa are three small white spots: cilia greyish-brown. Posterior wings grey, with paler cilia.

Common in the south of England, but more abundant in the north; frequenting gardens and hedges in June and July. Mr. Logan has bred it from larvæ feeding in the shoots of the cherry.

2. **nitidella**, Fab. Man. ii. 241. 12 (1787); Zell.; Sta.; W. V.?—*Pruni*, Haw.—*Pruniella*, Step.; W. V.?—*tetrapodella*, Linn.?—*curvella*, Zett.?—var. *ossea*, Haw.; Step. *Alis anticis dilutissime ochreo-brunneis*, stria ex medio bascos saturatiore, dorso albo, fascia *curvata* saturate brunnea *in apicem ducta* pone medium interrupto, strigulis tribus costæ apicem versus albidis. Exp. al.  $5\frac{1}{2}$  lin.

Var. *Alis anticis lacteis*, dorso nivo, stria basali, maculaque dorsali obsoletis.

Head, face, and palpi white. Antennæ white, annulated with dark fuscous. Anterior wings very pale ochreous-brown, with a darker streak from the middle of the base; the inner margin is white, interrupted beyond the middle by a *curved* dark brown fascia, *which terminates in the apex of the wing*; above it are two or three small whitish

spots on the costa; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

In the variety *ossea* the anterior wings are cream-colour, the inner margin remaining white, and the dark basal streak and dark spot on the inner margin becoming rather obsolete.

Very abundant among hawthorn in June and July. The larva feeds in the leaf-buds of the hawthorn in May.

3. **purpurascentella**, Sta. Zool. 1849. App. v. Alis anticis *purpurascente-griseis*, costam versus dilutioribus, dorso albo, macula obliqua fusca in apicem obsoletius producta, pone medium interrupto, punctis duobus costæ apicem versus albis. Exp. al. 5 lin.

Head white, with a few grey hairs. Face and palpi white. Antennæ white, annulated with dark fuscous. Anterior wings *greyish-purple*, paler on the costa, with the inner margin white, interrupted beyond the middle by an obliquely placed fuscous spot, which, though very indistinctly, appears to be continued towards the apex of the wing; on the costa before the apex are two or three small white spots; cilia *greyish-purple*. Posterior wings grey, with paler cilia.

I have only two specimens taken near Sheffield and in the south of Scotland, in July. I do not feel quite confident that it is distinct from *nitidella*.

4. **semitestacella**, Curt. Ent. Mag. i. 191 (1833); Id. B. E. fo. 719; Stép.; Sta.—*parenthesella*, Z. g. S. ? Alis anticis *ochreis*, dorso usque medium niveo, macula saturate ochrea terminato. Exp. al. 6–6½ lin.

Head white, with a few yellowish hairs. Face white. Palpi yellowish. Antennæ white, annulated with dark fuscous. Anterior wings *ochreous*, with the inner margin white to the middle, where there is a dark ochreous spot, beyond which are only a few whitish scales on the inner margin; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

Common among beeches in August and September.

5. **spiniella**, Zell. Isis, 1839, p. 204; Sta. Alis anticis *luteo-brunneis*, dorso albo, macula saturate fusca (sæpe ut fascia obliqua obsoleta producta) pone medium interrupto, costa albo fuscoque punctata, strigulis duabus ante apicem albidis. Exp. al. 6–6½ lin.

Head whitish. Face and palpi pale yellowish. Antennæ white, annulated with dark fuscous. Anterior wings *yellowish-brown*, with the inner margin white, interrupted by a dark fuscous spot beyond the middle, which can sometimes be traced indistinctly across the wing as an oblique fascia; the costa is delicately spotted alternately white and fuscous, with two larger whitish spots before the apex; cilia greyish-brown, at the anal angle grey. Posterior wings grey, with paler cilia.

Occurs in the north of England and Scotland, among mountain-ash, in August and September.

6. **albistria**, Haw. L. B. 517 (1829); Step.; Sta.—*fagetella*, Zell. Alis anticis *saturate ochreo-brunneis, purpureo-suffusis*, dorso *anguste* usque ad medium albo, macula fusca abrupte terminato. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head, face, and palpi white (sometimes yellowish). Antennæ white, annulated with dark fuscous. Anterior wings *dark ochreous-brown, with more or less of a purplish tinge*, with the inner margin *narrowly* white to the middle, where it is abruptly terminated by a dark fuscous spot; cilia ochreous-brown. Posterior wings grey, with paler cilia.

Very common in hedges in June and July. I have found the larvæ in the shoots of the sloe in May.

7. **conjugella**, Zell. Isis, 1839. p. 204; Id. L. E. ii. pl. 2. f. 3; Sta.—*semifusca*, Step.? Alis anticis *purpureo-fuscis*, dorso *albido*, macula saturate fusca ( sæpe fasciam obliquam formante ) pone medium interrupto, *macula in medio costæ saturate fusca*, strigulis duabus costæ ante apicem albidis; capillis *lutescentibus*. Exp. al. 6 lin.

Head, face, and palpi *yellowish*. Antennæ white, annulated with fuscous. Anterior wings *purplish-fuscous*, with the inner margin *whitish*, interrupted beyond the middle by a dark fuscous spot (sometimes continued obliquely across the wing); *nearly opposite* this spot, rather nearer the base of the wing, *is a dark fuscous spot on the costa*, and on the costa towards the apex are two conspicuous whitish spots; cilia *purplish-fuscous* at the apex, then whitish, and at the anal angle pale grey. Posterior wings pale grey, with paler cilia.

Not scarce among mountain-ash, from the middle of May to the beginning of July.

8. **semifusca**, Haw. L. B. 517 (1829); Sta.—*semipurpurella*, Step.—*Pruniella*, Don. B. I. ii. pl. 58. 59; Cl.? Alis anticis *brunneo-purpureis*, dorso nivo, *macula saturate purpureo-fusca* pone medium interrupto, strigulis tribus costæ apicem versus albis. Exp. al. 6 lin.

Head, face, and palpi white. Antennæ white, annulated with black. Anterior wings dark *brownish-purple*, with the inner margin white, interrupted beyond the middle by a dark fuscous-purple spot, *which cannot be traced as a fascia across the wing*; on the costa are three or four white spots before the apex; cilia at the apex brownish-purple, then white, at the anal angle grey. Posterior wings grey, with paler cilia.

I have met with this in mixed hedges in August, and also among beeches and *Clematis Vitalba*, but it is not common.

9. **mendica**, Haw. L. B. 517 (1829).—*mendicella*, Step.—*cæsiella*, Treit.—*Pruniella*, Zett.; Bjerk.?—*tetrapodella*, Zell.; Dup.—*Spiniosella*, Sta. Alis anticis *purpureo-griseis, basi ochracea*, dorso nivo, fascia saturate fusca *fere recta* pone medium interrupta, punctis nonnullis conspicuis costæ albis. Exp. al.  $5\frac{1}{2}$  lin.

Head white. Face and palpi yellowish-white. Antennæ white, with fuscous annulations. Anterior wings *purplish-grey, at the base ochreous*,



with the inner margin white, interrupted beyond the middle by a dark fuscous nearly straight fascia, which, although indistinct in the middle of the wing, is again perceptible on the costa, where it is defined by a white spot on each side; two or three smaller white spots are on the costa towards the apex; cilia greyish-purple. Posterior wings grey, with paler cilia.

Very common among sloe-bushes, at the end of May and beginning of June. The larva in the shoots of sloe, early in May.

10. **glaucinella**, Zell. Isis, 1839, p. 205; Sta. *Alis anticis griseo-aneis, dorso anguste albido, ad fasciam saturatiorem utrinque repandato, strigulis parvis transversis fuscis; capillis albido-luteis.* Exp. al. 4 lin.

Head white, mixed with *pale yellowish*. Face and palpi whitish. Antennæ yellowish-white, with slightly darker annulations. Anterior wings *greyish-bronze*, with the inner margin *whitish*, broadest on each side of the nearly perpendicular dark fascia; *several small transverse fuscous spots* can be observed in the pale inner margin; cilia fuscous. Posterior wings pale grey, with paler cilia.

A scarce species, appearing in June and July; has occurred at Camberwell and Beckenham, near London, near Bristol, also in Wales.

11. **retinella**, Zell. Isis, 1839, p. 205; Sta.—*ocellea*, Step.?—*Cornella*, Evers.? *Alis anticis albis, fusco transverse-reticulatis, costam versus fuscescentibus, macula obliqua plicæ pone medium, maculaque apicem versus fuscis, puncto apicis nigro.* Exp. al. 5 lin.

Head white, with a few grey hairs. Face and palpi white. Antennæ whitish, with pale fuscous annulations. Anterior wings white, with numerous transverse fuscous spots, and towards the costa almost entirely suffused with pale fuscous; *beyond the middle of the fold is a large fuscous spot, obliquely placed, and another large fuscous spot lies towards the apex of the wing; at the extreme apex is a black spot; cilia greyish-fuscous.* Posterior wings dark grey, with paler cilia.

Common among birches in June and July.

12. **abdominalis**, Zell. Isis, 1839, p. 205; Sta.; Lienig? *Alis anticis albis, striis duabus c basi, macula obliqua dorsali pone medium, punctisque sparsis posticis disci luteis, squamis apicis atris.* Exp. al. 4 lin.

Head, face, and palpi white. Antennæ whitish, annulated with pale fuscous. Abdomen rufous. Anterior wings *white*, with two yellowish streaks from the base, one near the inner margin stopping abruptly before the middle, the other near the costa, less sharply defined and reaching beyond the middle; beyond the middle of the inner margin is a yellowish spot, curving outwardly, and several scattered yellowish spots lie in the apical portion of the wing, some black scales are at the extreme apex; cilia pale yellowish. Posterior wings whitish, with paler cilia.

Not uncommon among junipers, at the end of June and beginning of July.

13. **dilectella**, Zell. L. E. ii. 272 (1847); Sta. Alis anticis nitidis *dilute aureis, dilutissime violaceo-suffusis*, dorso ad basin albo, striis duabus e basi distinctius aureis, macula transversali dorsali pone medium maculisque duabus costæ fuscis, puncto apicis atro. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ white, annulated with dark fuscous. Abdomen rufous. Anterior wings shining *pale golden, with a faint violet tint*; the base of the inner margin is white; two streaks from the base, one near the inner margin, the other near the costa extending to the middle of the wing are more distinctly golden; beyond the middle of the inner margin is a fuscous spot reaching nearly half across the wing, and at the anal angle is a smaller fuscous spot; a little before the middle of the costa is a small fuscous spot, and a larger one a little beyond the middle, which almost meets the larger spot from the inner margin; two small fuscous spots lie on the costa immediately before the apical black spot; cilia pale yellowish-grey. Posterior wings pale grey, with paler cilia.

Very common among juniper-bushes in July. Mr. Logan met with the larva last summer.

14. **Andereggiella** (F. v. R.), Dup. L. F. xi. 469. pl. 305. f. 9 (1838); F. v. R. pl. 74. f. 2; Zell.; Sta.—*I. V-ella*, Haw.; Step. Alis anticis albis, macula transversali quadrata in medio dorsi, postice ad costam oblique producta, fascia tenui obliqua apicem versus, striolam in apicem emittente aureo-brunneis. Exp. al. 5 lin.

Head, face, and palpi white. Antennæ white, annulated with dark fuscous. Anterior wings white, with an oblong transverse dark golden-brown spot on the middle of the inner margin, the posterior angle of which is produced obliquely to the costa, where it meets a slender oblique golden-brown fascia, from which a streak proceeds to the apex of the wing; cilia at the apex golden-brown, at the anal angle pale grey. Posterior wings grey, with paler cilia.

Occurs among wild apple-bushes in July and August.

15. **curvella**, Lin. F. S. 1387 (1761); Step.; Sta.—*curva*, Haw.—*Cornella*, Fab.; Treit.; F. v. R. pl. 15. f. 3; Dup.; Zell. L. E. ii.—*sparsella*, Zell. Isis, 1839. Alis anticis *niveis, fusco-reticulatis*, præcipue costam versus, macula parva dorsi ante medium, maculaque majore obliqua dorsi pone medium *saturate fuscis*, nebula postica costæ, maculaque ex angulo anali in apicem desinente *fuscis*; capillis *albis*. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi *white*. Antennæ white, annulated with dark fuscous. Anterior wings *white*, reticulated with *fuscous*, especially along the costa, with a small *dark fuscous* spot on the inner margin before the middle, and a larger obliquely-placed *dark fuscous* spot beyond the middle of the inner margin; opposite the latter is a *fuscous* blotch on

the costa; a fuscous spot from the anal angle goes partly across the wing, and then terminates in the apex; cilia grey. Posterior wings grey, with paler cilia.

Common among apple and pear trees in June and July.

16. **Sorbiella**, Treit. E. S. ix. 2. 160 (1833); F. v. R. pl. 15. f. 2; Zell.; Lienig; Sta.; Dup.? Alis anticis *albidis*, dorsum versus albis, costam versus *dilute aureo-brunneo* reticulatis, maculis tribus dorsi (prima ante medium, altera majore obliqua fere costam attingente pone medium, tertia minore ad angulum analem) *aureo-fuscis*; capillis albidis. Exp. al. 6 lin.

Head, face, and palpi whitish. Antennæ white, annulated with fuscous. Anterior wings *yellowish-white*, whiter on the inner margin, towards the costa reticulated with *pale golden-brown*; on the inner margin are three *golden-fuscous* spots, the first before the middle, the second larger and obliquely placed, beyond the middle, almost reaching to the costa, the third smaller at the anal angle; cilia pale yellowish-grey. Posterior wings grey, with paler cilia.

Common in June and July, among (*Sorbus Aucuparia*) mountain-ash and (*Sorbus Aria*) the white beam-tree. The larva feeds in the leaf-buds of those plants in May.

17. **pygmæella**, Hüb. 353 (1816); Treit.; F. v. R. pl. 15. f. 1; Lienig; Zell.; Sta.—*semifasciella*, Haw.; Step. Alis anticis nitidis *viridi-albis*, dorsum versus dilutioribus, *macula recta dorsali ante medium per plicam ad basin ducta*, macula obliqua majore pone medium dorsi (*costam non attingente*) maculaque minore ad angulum analem dilute aureo-brunneis. Exp. al.  $6\frac{1}{2}$  lin.

Head white. Face inclining to pale bronze. Palpi white. Antennæ white, annulated with fuscous. Anterior wings shining *greenish-white*, paler along the inner margin; before the middle of the inner margin is a pale golden-brown spot, *perpendicularly placed and united to the base of the wing by a streak along the fold*; beyond the middle of the inner margin is an oblique pale golden-brown spot, reaching more than half across the wing, and at the anal angle is a smaller spot; cilia greenish-white. Posterior wings pale grey, with paler cilia.

Common among sallows in June and July. The larva feeds in the young shoots of the willow in May.

18. **Goedartella**, Lin. S. N. (10) 541. 291 (1758); Fab.; Hüb. Tin. 133; Haw.; Treit.; Step.; Dup.—*semiargentella*, Don. Alis anticis albis (interdum aureo-suffusis), fascia obliqua e basi costæ, fascia media ad costam furcata, fasciaque postica aurcis; capillis albido-luteis. Exp. al. 6 lin.

Head yellowish-white. Face and palpi white. Antennæ white, annulated with fuscous. Anterior wings white (sometimes suffused with golden), with an oblique golden fascia from the base of the costa, a golden fascia in the middle furcate on the costa (one arm reaching the

costa rather before the middle, the other reaching the costa a little before the apex, and between them are generally a few golden spots on the costa); beyond is another golden fascia, which indeed occupies the whole of the apex of the wing, except a small white spot on each margin; cilia pale greyish-brown. Posterior wings grey, with paler cilia. (The anterior wings are sometimes so much suffused with pale golden that the markings are almost obliterated.)

Common among birches in June and July. The larva feeds under the bark and in the young shoots of the birch, in March and April.

19. **literella**, Haw. L. B. 570 (1829); Step.; Sta. Alis anticis albidis, fascia ante medium, fascia media furcata, fascia postica in apicem desinente aurcis, *costam non attingentibus*; capillis albidis. Exp. al.  $5\frac{1}{2}$  lin.

Head whitish. Face and palpi white. Antennæ white, annulated with fuscous. Anterior wings whitish, with a slender golden fascia from the inner margin, not far from the base, sloping inwards, a furcate fascia from the middle of the inner margin, *neither reaching to the costa*, and a third golden fascia from the anal angle, which, after reaching *half across* the wing, is deflected, and terminates in the apex of the wing; cilia pale ochreous. Posterior wings purplish-grey, with paler cilia.

Very rare; has been taken in Darenth Wood, in June. In the collection of the British Museum, and in that of Mr. B. Standish.

20. **Brockeella**, Hüb. Tin. 362 (1816); Treit.; Step.; Dup.; Zell.; Sta.—*I. W-ella*, Haw.—*Rajella*, Lin.?—var. *aurivittella*, Haw.; Step. Alis anticis aureo-brunneis, macula basali dorsi, fascia ad costam attenuata, ante medium, macula majore ad angulum analem, maculisque tribus costæ niveis; capillis *niveis*. Var. alis anticis dorso toto nivo, fascia ac prima macula costali confluentibus. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi *white*. Antennæ white, annulated with pale fuscous. Anterior wings shining golden-brown, with a spot at the base on the inner margin, a fascia before the middle attenuated on the costa, a large spot at the anal angle, and three spots on the costa (the last of which is small and lies immediately before the apex) shining snowy-white; cilia greyish-brown. Posterior wings grey, with paler cilia. In the variety *aurivittella*, the inner margin of the anterior wings is entirely white, and the fascia and first costal spot are frequently confluent; intermediate specimens also occur.

Common among birches in June and July. The larva feeds in the young shoots in March and April.

21. **arceuthina**, Zell. Isis, 1839. p. 205; Sta. Alis anticis *nividis viridi-æneis*; capillis (ac thorace) *niveis*. Exp. al.  $4\frac{1}{2}$  lin.

Head white. Face greenish-bronze. Palpi whitish. Antennæ white, annulated with fuscous. Anterior wings unicolorous *shining bronzy-green*, with paler cilia. Posterior wings pale grey, with paler cilia.

Not scarce among junipers, in May.

22. **præcocella**, Zell. Isis, 1839. p. 205; Sta. Alis anticis *nitidis ochreis, violacco-suffusis*; capillis *dilute luteis*. Exp. al. 5 lin.

Head whitish-yellow. Face and palpi pale ochreous. Antennæ whitish, annulated with pale fuscous. Anterior wings *shining ochreous, with a slight violet tinge*; cilia paler. Posterior wings rather broad, very pale grey, with paler cilia.

Occurs, not uncommonly, among junipers, in May.

23. **aurulentella** (Zell.), Sta. Zool. 1849. App. xl. Alis anticis *nitidis ochreis, violacco-suffusis, dorso anguste albo*; capillis *niveis*. Exp. al. 4 lin.

Head white. Face and palpi yellowish-white. Antennæ white, with fuscous annulations. Anterior wings shining-ochreous, with a slight violet tinge, *the inner margin narrowly white*; cilia whitish-ochreous. Posterior wings pearly-whitish, with pale ochreous cilia.

Very common among junipers, in July and August.

24. **decimella**, Sta. Sup. Cat. p. 10 (1851). Alis anticis *albis, striola costæ ex basi ad medium, in fasciam obliquam transcunte, striolaque brevior ex basi prope dorsum aureo-brunneis, puncto apicis nigro*. Exp. al. 3 lin.

Head, face, and palpi white. Antennæ whitish. Anterior wings white, with a golden-brown streak along the costa from the base to a little before the middle of the wing, where it is deflected, and forms an oblique posteriorly-angulated fascia; near the inner margin at the base is another short golden-brown streak; in the apex of the wing is a small black spot; cilia white, but round the apical black spot they are golden, with the tips dark fuscous. Posterior wings pale grey, with paler cilia.

Unique in Mr. Weir's collection; taken on a fence at Camberwell, in June, 1850.

I am by no means certain that it should be referred to this genus, but the structure of the palpi, which remove it from *Ela-chista*, allow of its being placed in the genus *Argyresthia*, and the rough head may have been rendered invisible by the distorted mode in which the insect was pinned.

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## Genus II. CEDESTIS.

*Ecophora* p., Dup. *Argyresthia* p., Zell.

Capilli hirsuti, epistomio lævigato. Antennæ alis anterioribus breviores, articulo basali elongato incrassato, articulis distinctis. Ifaustellum nullum. Palpi labiales *breviusculi, incrassati, pilosuli*. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ; anteriores: venæ ex cellulæ discoidalis parte postica sex, octove oriuntur, apicalis sim-

plex; subdorsalis simplex; posteriores: vena apicalis ante apicem exit, infra eam vena simplex, et venæ alteræ duæ simplices e venula transversa.

Head rough, the face smooth. Antennæ shorter than the anterior wings, with distinct joints, the basal joint elongate and thickened. Tongue none. Labial palpi *rather short, thickened, hairy*. Wings with long cilia, the anterior elongate, the posterior lanceolate. In the anterior wings six or eight veins proceed from the hinder portion of the discoidal cell; the apical vein is simple; the subdorsal vein is simple. In the posterior wings the simple apical vein terminates above the apex; below it is a simple vein, and two other simple veins from the transverse vein.

Only two species are known in this genus; they frequent fir-trees in the middle of summer; in repose they sit appressed to the surface on which they rest.

1. **farinatella** (Zell.), Dup. L. F. xi. 473. pl. 305. f. 11 (1838); F. v. R. pl. 74. f. 4; Zell.; Sta.—*sulfasciella*, Step.? Alis anticis albido-griseis, fusco-pulveratis, fascia ante medium, nebulaque postica fuscis. Exp. al.  $5\frac{1}{2}$  lin.

Head whitish-grey, with some darker hairs in front. Face and palpi grey. Antennæ white, annulated with fuscous. Anterior wings whitish-grey, much irrorated with fuscous, with a *fuscous* fascia before the middle, followed by a whitish fascia of the undusted ground-colour; the remainder of the wing is nearly entirely *fuscous*, except a whitish spot on each margin before the apex; cilia greyish-white. Posterior wings rather broad, pale grey, with paler cilia.

Common among fir-trees in June and July. Illustrations of the transformations of this species are promised in the forthcoming number of Mr. Logan's 'Illustrations of Scottish Lepidoptera.'

2. **Gysselinella** (Kuhl.), Dup. L. F. xi. 461. pl. 305. f. 4 (1838). —*Gysseleniella*, F. v. R. pl. 74. f. 3; Zell.; Lienig; Sta. Alis anticis albido-griseis, griseo-pulveratis, *fascia lata obsoleta basali*, fascia distinctiore ante medium, nebulisque posticis *dilute aureo-brunneis*. Exp. al.  $5\frac{1}{2}$  lin.

Head whitish-grey. Face and palpi white. Antennæ whitish, with pale fuscous annulations. Anterior wings whitish-grey, dusted with grey, *with a rather indistinct pale golden-brown fascia* near the base, and another more defined just before the middle, and some *pale golden-brown* blotches beyond the middle and at the apex; cilia greyish-fuscous. Posterior wings pale grey, with paler cilia.

Occurs among fir-trees in June and July. The only British specimen I have seen is in Mr. Allis's collection; it was taken by Mr. Weaver.

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Genus III. **OCNEROSTOMA.**

OCNEROSTOMA, Zell. L. E. ii. 298 (1847). *Argyresthia* p., Zell. Isis, 1839.

Caput comosum, epistomio lævi. Antennæ alis anterioribus breviores, setacæ, articulo basali crassiusculo. Haustellum brevissimum. Palpi *brevissimi, bulbiformes*. Alæ anteriores acuminatæ, posteriores lanceolatæ; anteriores: cellula discoidalis acuminata, postice imperfecta, venas *quinque* emittente; subdorsalis simplex; posteriores: vena infra apicalem *furcata*; mediana furcata.

Head rough; the face smooth. Antennæ shorter than the anterior wings, setaceous; the basal joint rather thick. Tongue hardly perceptible. Palpi *very short, bulbiform*. Anterior wings acuminate; posterior wings lanceolate. In the anterior wings the acuminate discoidal cell is posteriorly imperfect and emits *five* veins; the subdorsal vein is simple; in the posterior wings there is a *furcate* vein below the apical vein and the median vein is furcate.

Only one species is known in this genus; it appears in early spring and again in summer, but it is doubtful whether it be double-brooded, the spring specimens having probably hybernated; it reposes appressed to the surface on which it rests.

1. **pinariella**, Zell. L. E. ii. 299 (1847); Sta.—*argentella*, Zell.; Lienig.—*galactitella*, Evers.? Alis anticis nitidis, argenteo-griseis; capillis griseis; antennis totis fuscis. Exp. al.  $5\frac{1}{2}$  lin.

Head pale grey. Face and palpi dark grey. Antennæ unicolorous fuscous. Anterior wings unicolorous, shining silvery-grey, with paler cilia. Posterior wings pale grey, with paler cilia.

Common among fir-trees in April, June, and July.

Genus IV. **ZELLERIA.**

ZELLERIA, Sta. Cat. p. 22 (1849).

Capilli hirsuti, epistomio lævigato. Ocelli nulli. Antennæ alis anterioribus breviores, crassiusculæ. Haustellum nudum. Palpi labiales porrecti, vel fere adscendentes, *breviusculi, squamis incrassati, articulo tertio obtuso*. Alæ longe ciliatæ, anteriores *subfalcatæ*, posteriores lanceolatæ; anteriores: vena apicalis simplex ante apicem exit, infra eam venæ quinque, quarum penultima et antepenultima ex eodem puncto prodeunt; subdorsalis simplex; submedianæ apex incrassatus; posteriores: vena apicalis longe furcata supra et infra apicem exit; mediana trifida.

Head rough; the face smooth. Ocelli none. Antennæ shorter than the anterior wings, rather thick. Tongue naked. Labial palpi por-

rected, or almost ascending, *rather short, thickened with scales; the terminal joint blunt*. Wings with long cilia, the anterior subfalcate, the posterior lanceolate. In the anterior wings, the simple apical vein runs into the costa before the apex; below it are five veins, of which the penultimate and the antepenultimate proceed from the same point; the subdorsal vein is furcate; the apex of the submedian vein is thickened; in the posterior wings the apical vein has a long fork terminating above and below the apex; the median vein is trifid.

Only three species are known in this genus, if indeed there be more than two, as it is not improbable that *hepariella* and *insignipennella* may ultimately not prove specifically distinct. The larvæ of none of them are known, though (to my shame be it said) I have myself bred *hepariella*, but have no recollection whatever of the larva; in the cage in which I bred it was an *ash-leaf*, that had evidently *been eaten*; it emerged from its thick white cocoon on the 27th of July, 1852\*.

The first two species appear at the end of summer and autumn, and, hibernating, are occasionally met with in the spring; *fasciapennella*, taken by Mr. Logan among *Vaccinium Myrtillus*, on the Pentlands, in September, may probably likewise hibernate.

1. **hepariella** (Mann), Sta. Cat. p. 22 (1849).—*gryphipennella*, Haw. ? Alis anticis rufo-ochraceis, *postice fusciscentibus, puncto obsoleto supra angulum analem fusco*; capillis luteis. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi luteous. Antennæ fuscous, with paler annulations. Abdomen above grey, beneath reddish-orange, the sides white. Anterior wings rufous-ochreous, posteriorly somewhat fuscous, with an appearance of a small darker spot above the anal angle; cilia rufous-ochreous at the apex, grey at the anal angle. Posterior wings dark grey, with grey cilia.

Occasionally met with in the south of England, from August to October, and again in spring, but nowhere common.

2. **insignipennella**, Sta. Cat. p. 22 (1849). Alis anticis rufo-ochreis (*dorsum interdum dilutiore*), *postice saturatioribus, nebula fusciscente disci pone medium*; capillis luteis. Exp. al.  $7\frac{1}{2}$  lin.

Head, face, and palpi luteous. Antennæ fuscous, with paler annulations. Anterior wings rufous-ochreous (frequently paler towards the inner margin), posteriorly dark, with an obscure fuscous blotch on the disc beyond the middle; cilia rufous-ochreous at the apex, grey at the anal angle. Posterior wings dark grey, with grey cilia.

Appears in autumn and again in spring; has occurred at Mickleham and Dartford Heath.

3. **fasciapennella** (Logan), Sta. Cat. p. 22 (1849). Alis anticis dilute griseis, *obscuriore nebulosis, atomis nigris in seriebus quatuor*

\* The day on which Professor Zeller finished his visit to England.



longitudinalibus dispositis, fascia obliqua ante medium fusca; capillis griseis. Exp. al. 8-9 lin.

Head, face, and palpi light grey, mixed with dark grey. Antennæ grey, with paler annulations. Abdomen above grey, beneath silvery-white. Anterior wings pale grey, clouded with dark grey, with four longitudinal rows of black spots, the first on the costa terminating in the middle of the wing, the second near the costa terminating a little before the apex of the wing, the third and fourth run one on each side of the fold to the anal angle; before the middle of the wing is an oblique (nearest to the base on the inner margin) cloudy dark fascia; before the apex is a white costal spot, followed by a black one; cilia grey, intermixed with white; the extreme apex dark fuscous. Posterior wings pale grey, with grey cilia.

Occurs on the Pentlands, among *Vaccinium Myrtillus*, in September and October.

#### FAMILY VIII. GRACILARIIDÆ.

Capilli lævigati, vel hirsuti. *Antennæ alarum anteriorum longitudine æquantes. Palpi maxillares longiusculi, filiformes. Palpi labiales tenues, articulo tertio acuminato. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ.*

Head smooth or rough. *Antennæ as long as the anterior wings. Maxillary palpi rather long, filiform. Labial palpi slender; the third joint acuminate. Wings with long cilia; the anterior elongate; the posterior lanceolate.*

In direct opposition to the mode of sitting of the insects of the principal genus of the preceding family, which may be said to sit on their *heads*, the species of this family sit on their *tails*, having the head considerably raised from the surface on which they repose, the anterior pair of legs being put forward, the middle pair rather stretched out sideways, and the posterior pair placed close beside the abdomen; by this peculiarity any species of this family may be immediately recognized if seen at rest.

The three genera of this family may be at once distinguished as follows:—

*a.* Head smooth.

*b.* Second joint of labial palpi with no projecting tuft. 1. GRACILARIA.

*b b.* Second joint of the labial palpi with a projecting tuft. 2. CORISCUM.

*a a.* Head rough. 3. ORNIX.

Genus I. **GRACILARIA.**

GRACILARIA, Zell. Isis, 1839. p. 208. *Gracillaria*, Dup. Cat. *Gracillaria* p., Haw.; Curt.; Dup. L. F. xi. *Ornis* p., Treit.; Zett. *Gracillaria* p. et *Euspilapteryx*, Step.

*Caput superne* ac in fronte *lævigatum*. Ocelli nulli. Antennæ alarum anteriorum longitudine æquantes, tenues, articulo basali elongato, incrassato. Haustellum squamatum. Palpi maxillares longiusculi, filiformes. Palpi labiales tenues, adscendentes, cylindrici, articulo secundo squamis appressis, *non fasciculato*, articulo tertio acuminato. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ; anteriores: vena subcostalis basim versus interrupta, e cellulæ discoidalis parte postica venæ novem oriuntur, quatuor in costam, quinque in marginem posticum excuntibus; subdorsalis simplex; posteriores: vena apicalis ante apicem exit, infra eam vena furcata, vena mediana trifida.

*Head above* and in front *smooth*. Ocelli none. Antennæ as long as the anterior wings, slender; the basal joint elongate, thickened. Tongue clothed with scales. Maxillary palpi rather long, filiform. Labial palpi slender, ascending, cylindrical; the second joint with appressed scales, *not tufted*; the terminal joint pointed. Wings with long cilia, the anterior elongate, the posterior lanceolate. In the anterior wings the subcostal vein is interrupted towards the base; from the hinder portion of the discoidal cell nine veins proceed, of which four go into the costa, and five into the hinder margin; the subdorsal vein is simple; in the posterior wings the apical vein terminates above the apex, below it is a furcate vein; the median vein is trifid.

In the small species of this genus, the maxillary palpi are less developed, and the labial palpi are almost drooping.

The species of this genus are elegant in form and frequently gaily coloured, or prettily mottled. Some species are double-brooded, the autumnal brood generally hibernating, and being met with in wasted condition in the spring; they feed upon low plants, as well as upon shrubs and trees. The larvæ have only fourteen feet; when young they mine the leaves, but at a later period of growth many of the species construct cones, by rolling up a portion of a leaf; they devour the inner portion of these cones, which thus become discoloured and are easily observed.

The species of the genus may be arranged in the following table:—

*a.* Large species.

*b.* Anterior wings with a distinct paler trigonal mark on the costa. Species 1, 2.

*b b.* Anterior wings with a more or less distinctly margined, but hardly paler trigonal mark on the costa. Species 3–8.

- b b b.* Anterior wings with no trigonal mark on the costa. Sp. 9, 10.  
*a a.* Small species.  
*c.* Anterior wings with fasciaform markings. Species 11.  
*c c.* Anterior wings with pale spots on the costa and inner margin. Species 12-14.  
*c c c.* Anterior wings with numerous silvery spots. Species 15, 16.

1. **Swederella**, Schalén (Thun.), M. N. A. U. 6. 80 (1788).—*Frankella*, Hüb. Tin. 379; Lienig; Zell.; Sta.; Dougl. Ent. Trans. ii. n. s. pl. xiv. f. 1.—*hilaripennella*, Treit.; Dup.—*Thunbergella*, Step.—*Thunbergii*, Haw.? Alis anticis rufis, violaceo-nitidis, dorso prope basin, trianguloque costali plicam superante, ad costam apicem versus producto, flavidis. Exp. al.  $6\frac{1}{2}$  lin.

Head reddish-brown. Face pale yellow. Palpi pale yellow, with a darker ring before the apex. Antennæ pale yellow, with brown annulations. Anterior wings bright reddish, with a violet gloss; at the base along the inner margin is a pale yellow streak; the costal triangle is pale yellow, it reaches nearly across the wing and extends along the costa nearly to the apex; at the anal angle are a few pale yellow scales; cilia reddish at the apex, more yellowish towards the anal angle. Posterior wings shining grey, with paler cilia.

Common among oaks in May, June, and August. The larva is very common in cones on oak-leaves in September and October, and probably there is another brood in July.

2. **stigmatella**, Fab. G. I. ii. 295. 34 (1781); Schr.; Step.; Lienig; Zell.; Sta.; Dougl. Ent. Trans. ii. n. s. 124. pl. xiv. f. 2.—*upapennella*, Hüb.; Treit.; Dup.—*triangulella*, Panzer.—*trigona*, Haw.—*ochracea*, Haw.; Step.—*purpurea*, Haw.? Step.? Alis anticis rufo-brunneis, triangulo costali albido, plicam tangente, apice postice producto. Exp. al. 7 lin.

Head and face reddish-grey. Palpi reddish-brown, the tips yellowish. Antennæ pale yellowish, with brown annulations. Anterior wings reddish-brown, darkest along the margins of the costal triangle; the costal triangle is whitish-yellow with a few scattered dark scales, it reaches to the fold, where its apex is produced a little in the direction of the hinder margin; cilia at the apex rufous, towards the anal angle grey. Posterior wings grey, with paler cilia.

Common among willows; appears in the autumn, but then rarely met with; most frequently found in spring after hibernation. The larva may be found in August and September, in cones on the leaves of willows, poplars, and poplars.

3. **stramineella**, Sta. Ent. Trans. i. n. s. 121. pl. xiv. f. 9 (1851). Alis anticis stramineis, punctis sparsis rufo-brunneis, duobus distinctioribus quasi marginibus trianguli costalis, non dilutioris, formantibus. Exp. al.  $6\frac{1}{2}$  lin.

Head and face pale straw-yellow. Palpi pale straw-yellow; the ter-

minal joint rufous-brown before the apex. Antennæ pale yellowish, with brown annulations. Anterior wings *pale straw-colour*, with numerous reddish-brown spots, of which the two most conspicuous form, as it were, the margins of the usual costal triangle, which however is not paler than the rest of the wing; cilia of the hinder margin straw-colour, mixed with reddish, of the inner margin grey. Posterior wings shining grey, with grey cilia.

I have specimens taken in Torwood, in September. There are also specimens in the collection of Mr. Allis, and in that of the British Museum.

4. **hemidactylella**, Hüb. Tin. 276 (1812); Dup.; Zell.; Sta.; W. V.? Fab.? Step.? Alis anticis *dilute ochreis* rufo-ochreo mixtis, triangulo costali *distincto* plicam tangente dilute ochreo, *punctis costæ parvis fuscis*; capite cum palpis rufo-ochreo, horum apice albido. Exp. al. 6 lin.

Head and face pale ochreous, mixed with reddish-ochreous. Palpi reddish-ochreous, the extreme tip whitish. Antennæ pale fuscous, with whitish annulations. Anterior wings *pale ochreous*, marbled with reddish-ochreous, with a *distinct* costal triangle of the paler ground-colour, not crossing the fold; *on the costa are some small fuscous spots*; cilia pale ochreous, mixed with reddish-ochreous. Posterior wings grey, with paler cilia.

A scarce species; occurs at Whittlebury, in September.

5. **falconipennella**, Hüb. Tin. 317 (1816); Treit.; Zell.; Sta. Alis anticis *rufo-brunneis*, triangulo costali *indistincto* dilutiore, *punctis saturate fuscis costæ albidæ dorsique*; capite rufo-brunneo; palpis dilutioribus, apice articuli secundi, annulo ante apicem albidum articuli tertii saturatioribus. Exp. al. 6½ lin.

Head and face reddish-brown. Palpi pale reddish-brown, the end of the second joint and a broad ring before the whitish tip of the terminal joint darker. Antennæ fuscous, with whitish annulations. Anterior wings *reddish-brown*, with a *faintly indicated* paler costal triangle and *some dark fuscous spots* along the whitish costa, and *along the inner margin*; cilia of the hinder margin reddish-brown, of the inner margin grey. Posterior wings grey, with paler cilia.

A scarce species; appearing in autumn. Specimens are in the collections of Mr. Bedell, Mr. Shepherd, and the British Museum.

6. **semifascia**, Haw. L. B. 528 (1829); Step.; Sta. Ent. Trans. i. n. s. pl. xiv. f. 13.—*picipennella*, Zell. Alis anticis dilute luteis, rufo-brunneo variegatis (vel omnino rufo-brunneis), *strigula obliqua* ante medium dilute lutea, *plicam tangente et super eam currente*, punctis numerosis costæ saturate fuscis. Exp. al. 5 lin.

Head and face pale yellowish, mixed with reddish-brown. Palpi pale yellowish; terminal joint dark fuscous, the tip pale yellowish. Antennæ dark fuscous, with whitish annulations. Anterior wings pale yellowish, irregularly varied with reddish-brown (or almost entirely

reddish-brown), with an oblique pale yellowish streak from the costa before the middle, it does not reach beyond the fold, and is deflected along it; on the costa are several small dark fuscous or black spots; cilia of the hinder margin reddish- or brownish-grey, of the inner margin grey. Posterior wings grey, with paler cilia.

Appears in September and October; has occurred at Mickleham, at Whittlebury, and near Bristol.

7. **populetorum**, Zell. Isis, 1839. p. 209; Sta. Ent. Trans. i. n. s. pl. xiv. f. 11.—*violacea*, Haw.? Step.? Alis anticis dilute ochreis, purpurascente tinctis, nebulis subfasciatis obscurioribus, punctis numerosis costæ nigris, uno in medio majore, punctis tribus fuscis disci. Exp. al.  $5\frac{1}{2}$  lin.

Head and face dirty-whitish, mixed with fuscous. Palpi dirty white, the end of the second joint and a broad ring on the third fuscous. Antennæ fuscous, with whitish annulations. Anterior wings pale ochreous, tinged (more or less) with purple, with some nebulous fasciiform darker markings; on the costa are several small black spots, one in the middle, being larger, is conspicuous; above the fold at nearly regular intervals are three fuscous spots; cilia greyish-fuscous. Posterior wings grey, with greyish-fuscous cilia.

Appears in September among poplar-trees; hitherto scarce. The larva feeds (according to Fischer) on birch and aspen.

8. **elongella**, Linn. F. S. 1436 (1761); Fab.: Step.; Lienig; Zell.; Sta.—*punctella*, Linn.; Fab.—*signipennella*, Hüb. Tin. 196; Treit.; Dup.—*hemidactyla*, Haw.—*roscipennella*, Treit.; Dup.; Hüb.? —*inconstans*, Sta. Ent. Trans. i. n. s. pl. xiv. f. 1–7. Alis anticis rufo-ochreis, *triangulo costali truncato, vix dilutiore, brunneo-rufo marginato*, nebulis posticis fuscis. Exp. al.  $6\frac{1}{2}$ – $7\frac{1}{2}$  lin.

Head reddish-ochreous. Face pale ochreous. Palpi pale ochreous; the terminal joint reddish-ochreous. Antennæ fuscous, annulated with whitish. Anterior wings reddish-ochreous, irregularly varied with darker markings, in which a *truncate costal triangle, hardly paler than the ground-colour, may generally be traced*; it has sometimes a dark fuscous spot on each side above the fold; cilia of the hinder margin reddish-ochreous, of the inner margin grey. Posterior wings grey, with paler cilia.

This extremely variable species is not scarce in many localities; taken in plenty by Mr. Cooke, of Warrington, in June. Mr. Shield found the larvæ in rolled-up alder-leaves near Dublin, last August. According to Lienig the larva also feeds in May.

9. **tringipennella**, Zell. Isis, 1839. p. 209; Sta.—*fringilella*, Dup. L. F. Sup. pl. 75. f. 11.—*roscipennis*, Haw.?—*roscipennella*, Step.? Alis anticis dilute ochreis, costam versus livide grisescentibus, seu osseis, seriebus tribus longitudinalibus punctorum nigrorum. Exp. al.  $6\frac{1}{2}$  lin.

Head pale ochreous. Face greyish-fuscous. Palpi greyish-ochreous;

terminal joint fuscous. Antennæ greyish-ochreous. Anterior wings *pale ochreous*, along the costa livid greyish or pale white, with three longitudinal rows of black spots, one near the costa, one on the disc, and one on the fold; the latter is frequently obliterated, or the number of spots does not exceed two or three; cilia pale ochreous. Posterior wings grey, with paler cilia.

Not uncommon in meadows among *Plantago lanceolata*, in May and August. The larva, discovered by Mr. Shield, mines the upper surface of the leaves of the *Plantago lanceolata*; one brood begins to feed in October, changing to pupa in May; the other brood feeds up in June and July.

10. **Syringella**, Fab. E. S. iii. 2. 328. 177 (1794); Schr.; Bouché; Stép.; Zell.; Dup.; Sta.—*anastomosis*, Haw.; Curt. B. E. fo. 479.—*ardeapennella*, Treit.; Dup. Alis anticis albido-luteis, basi, macula dorsali, fasciis tribus obliquis (prima ac secunda angulatis, secunda tertiaque connexis) apiceque læte brunneis. Exp. al. 6 lin.

Head greyish-ochreous. Face whitish. Palpi whitish; terminal joint with a narrow fuscous ring near the base, and a broader one before the apex. Antennæ fuscous, annulated with white. Anterior wings yellowish-white, with the base dark fuscous, and with several brown markings; the first, a blotch on the inner margin not far from the base, the second, an oblique fascia angulated in the middle, the third is a paler angulated fascia connected in the middle with another oblique fascia, which terminates in the anal angle; the apical portion of the wing is entirely brownish-fuscous, except two whitish spots on the costa; cilia of the hinder margin whitish, externally with two dark lines; of the inner margin grey. Posterior wings grey, with paler cilia.

An abundant species in gardens, among lilacs, in May and July. The larva, when young, mines the leaves of the lilac, gregariously, several larvæ being in the same mine; when nearly full-grown, they frequently cease mining, and roll up the leaves, but many remain as miners throughout the period of their existence in the larva state. At times they become real pests from their numbers, disfiguring the lilac-bushes by turning the leaves whitish-brown; the best way to thin their numbers is to pluck the leaves whilst the young larvæ are mining gregariously. The larvæ may be met with in June and September; they feed on ash and privet, as well as on the lilac. The young mining larvæ have the three pair of ventral and two anal prolegs, as in the other larvæ of this genus, but to see them requires a good microscope.

11. **omissella** (Dougl.), Sta. Zool. 1848. p. 2163; Id. Ent. Trans. i. n. s. pl. 15 f. 1. Alis anticis *fuscescens-griseis*, vel ochreis, strigis quinque costæ (ultima in apice) maculisque duabus dorsi (priore oblonga basali, altera in medio) *albis*. Exp. al. 4 lin.

Head and face whitish. Palpi white, the end of the second joint and a ring before the apex of the terminal joint dark fuscous. Antennæ fuscous. Anterior wings *greyish-fuscous* or ochreous, with five *white* streaks from the costa, the first four oblique and nearly at equal distances, the fifth in the extreme apex running out into the hinder margin; along the base of the inner margin is a white blotch, which almost meets the first costal streak, and below the apex of the second costal streak is a small white spot on the middle of the inner margin; cilia of the apex whitish, with a dark outer line, of the inner margin grey. Posterior wings grey, with paler cilia.

Common at Dartford Heath, at the end of July, among *Artemisia vulgaris*. The larva mines the leaves of that plant, not contorting them, but giving them an inflated appearance, at the end of June and beginning of July, and again in the autumn. A brood of the perfect insect probably appears in May.

12. **phasianipennella**, Hüb. 321 (1816); Id. Larvæ?; Treit.; Zell.; Sta. Alis anticis nitidis brunneis, maculis duabus dorsi, tribus costæ (prima obliqua ante, secunda curvata pone medium, tertia obsoleta ante apicem) *albidis* (interdum dilute brunneis) *fusco-marginatis*. Exp. al. 5 lin.

Head and face brown. Palpi brown, the base and tip of the terminal joint paler. Antennæ brown. Anterior wings shining brown, with two *whitish spots* on the inner margin (one near the base and one in the middle), and three on the costa (the first oblique before the middle, the second curved posteriorly beyond the middle, the third very indistinct just before the apex); *these spots are rarely distinct, and at times hardly distinguishable except by their dark margins*; cilia brown. Posterior wings grey, with paler cilia.

Appears in September and October, among *Polygonum Hydropiper*. Taken by Mr. Weaver in Scotland, and by Mr. Boyd in the New Forest. The larva feeds in August and September on the leaves of the *Polygonum Hydropiper*; it cuts a strip from the side of a leaf, and rolls it up, taking care not to separate it from the leaf; this rolled-up portion of leaf is generally placed perpendicularly to the lower surface of the leaf; the larva feeds within it, and when its provisions fall short, proceeds to treat another leaf in a similar manner; when full-fed it spins a fine white cocoon within the rolled piece of leaf. (The only larva known to feed in a similar manner is that mentioned by Réaumur as feeding in September on the leaves of the sorrel, but this has not been met with by any subsequent writer, and the species which it produces is unknown to us.)

13. **auroguttella**, Step. II. iv. 274 (1834); Sta.; Dougl. Ent. Trans. ii. n. s. 124. pl. 14. f. 3.—*lacertella*, Zell.—*stipella*, Haw.?—

*plumbella*, Dup.? Alis anticis saturate æneo-griseis, maculis quatuor aureis, prima dorsi basali, secunda ante medium prope costam, tertia dorsi ante angulum analem, quarta costæ ante apicem. Exp. al. 4-4½ lin.

Head and face shining bronzy-grey. Palpi brown-grey, the extreme tip white. Antennæ dark fuscous, with the tip white. Anterior wings dark bronzy-grey, with four unmargined golden yellow spots, one at the base on the inner margin, a second near the costa before the middle, a third on the inner margin before the anal angle, and a fourth on the costa before the apex; cilia greyish-fuscous. Posterior wings fuscous, with grey cilia.

Common in May, and again in July and August, among *Hypericum*. The larva feeds on several species of *Hypericum* (principally *perforatum*), in June, and in September and October; when very young it mines the leaves, giving them a slight pucker; it afterwards rolls the leaves up into cones, of which it eats the inner substance, whereby the cones, which are at first green, become whitish or brownish; when full-fed, it rolls up a short leaf longitudinally, and therein spins its cocoon, and assumes the pupa state.

14. **quadruplella**, Zell. Isis, 1839. p. 209; Sta. Ent. Trans. i. n. s. pl. 15. f. 5.—*auroguttella*, Step. Alis anticis nitidis lutescente-fuscis, maculis quatuor sulphureis, fusco-marginatis, prima dorsi prope basin triangulari, secunda costæ ante medium obliqua, tenui, plicam fere tangente, tertia dorsi pone medium triangulari, quarta costæ ante apicem brevi. Exp. al. 4½ lin.

Head yellowish-brown. Face paler. Palpi yellowish-brown; the base and apex of the terminal joint whitish. Antennæ fuscous, with paler annulations. Anterior wings rather shining yellowish-brown, with four sulphur-coloured dark margined spots; the first on the inner margin near the base, rather triangular, the second on the costa before the middle, obliquely placed and slender, reaching nearly to the fold, the third triangular on the inner margin beyond the middle, and the fourth rather short on the costa before the apex; cilia of the apex fuscous, of the inner margin grey. Posterior wings grey, with paler cilia.

A single specimen is in the collection of the British Museum, being that formerly in the collection of the late Mr. Stephens, who took it at Ripley, in June, 1827. (Twenty-seven years ago, and still unique!)\*

15. **Ononidis**, Zell. Isis, 1839. p. 209; Sta. Ent. Trans. i. n. s. pl. 15. f. 7.—*Ononietta*, Dup.—*moniliella*, Tengstr.—*argutipunctella*,

\* Since writing the above, having had an opportunity of comparing this specimen with some brightly-marked specimens of *phasianipennella*, I am of opinion that *quadruplella* is not a distinct species, but merely a strongly-marked variety of *phasianipennella*.



Sta. Alis anticis *saturate brunneis*, *punctis novem* (uno prope dorsum, tribus dorsi, quatuor costæ, uno apicis) *argenteis*, *nigro-marginatis*. Exp. al. 4 lin.

Head brown. Face silvery. Palpi white. Antennæ brown, annulated with white. Anterior wings *dark brown*, with nine silvery *spots*, margined with black; one is near the inner margin towards the base, three are on the inner margin, four on the costa, and one in the apex of the wing; cilia brown. Posterior wings greyish-brown, with paler cilia.

Occurs at Pembury among *Genista tinctoria*, and near Mickleham, in June, July, and August. The larva mines the leaves of *Ononis spinosa* in April and May.

16. **imperiaella**, Mann. L. E. ii. 365. Ann. (1847); Sta. Alis anticis *aureis*, *fascia abbreviata prope basim obliqua*, *strigis tribus costæ*, *maculis duabus dorsi* (cum strigis prima et secunda costæ fere in fascias connexis) *maculaque minore ante apicem argenteis*. Exp. al.  $3\frac{1}{2}$  lin.

Head yellowish. Face and palpi snowy-white. Antennæ pale grey. Anterior wings shining-golden, with an oblique abbreviated silvery fascia near the base, and beyond are three silvery streaks, from the costa, of which the third reaches to the inner margin; two small silvery spots lie on the inner margin opposite the apices of the first and second costal streaks; a small silvery spot lies immediately before the apex of the wing; cilia of the hinder margin whitish with two dark fuscous lines, of the inner margin grey. Posterior wings pale grey, with paler cilia.

Taken by Mr. Dale at Glanville's Wootton, in May, 1840. A specimen is in Mr. Shepherd's collection.

## Genus II. CORISCIMUM.

CORISCIMUM, Zell. Isis, 1839. p. 210; Dup. Cat. *Trichotripis* p., Hüb. *Gracillaria* p., Haw.; Step. *Elachista* p., Dup. L. F. xi.

*Caput superne ac in fronte lævigatum*. Ocelli nulli. Antennæ alas anteriores longitudine æquantes, tenues, articulo basali elongato, incrassato. Haustellum mediocre, nudum. Palpi maxillares longiusculi, filiformes. Palpi labiales tenues, adscendentes, articulo secundo infra fusciculo pilorum, tertio tenui acuminato. Alæ longe ciliatæ, anteriores elongatæ, posteriores lanceolatæ; anteriores: vena subcostalis basin versus interrupta; cellula discoidalis obtusa postice venas novem emittit; vena subdorsalis simplex; posteriores: vena apicalis ante apicem exit, infra eam vena furcata; vena mediana trifida.

Head above and in front smooth. Ocelli none. Antennæ as long as the anterior wings, slender, the basal joint elongate, thickened. Tongue

of moderate length, naked. Maxillary palpi rather long, filiform. Labial palpi slender, ascending, *the second joint beneath with a tuft of hairs*, the terminal joint slender, pointed. Wings with long cilia, the anterior elongate, the posterior lanceolate. In the anterior wings the subcostal vein is interrupted towards the base; the discoidal cell is obtuse, and emits nine veins posteriorly (in *C. Brongniardellum* the discoidal cell is *acute*, and emits *eight* veins posteriorly); the subdorsal vein is simple; in the posterior wings the apical vein terminates above the apex, below it is a furcate vein; the median vein is trifid.

The species of this genus, three in number, resemble the *Gracilaria* in habits. The larvæ mine or roll up leaves.

The genus may be thus subdivided:—

a. With a hook in the cilia of the anterior wings. Species 1.

a a. With no hook in the cilia of the anterior wings. Species 2, 3.

1. **Brongniardellum**, Fab. E. S. Sup. 496. 83 (1798).—*substriga*, Hlav.; Step.—*Curtisella*, Dup. L. F. xi. pl. 309. f. 4.—*querce-tellum*, Zell. Alis anticis grisco-brunneis, strigulis quatuor obliquis costæ albidis, introrsum fusco-marginatis, prima cum strigula dorsi in fasciam angulatam connexa, strigula altera albida in medio dorsi, squamis albidis fuscisque ad angulum analem; ciliis apicis in caudulam nigram productis. Exp. al.  $4\frac{1}{2}$  lin.

Head greyish-brown. Face grey. Palpi whitish; terminal joint fuscous. Antennæ dark fuscous, annulated with whitish. Anterior wings greyish-brown, with four oblique whitish streaks from the costa, margined towards the base with dark fuscous; the first not far from the base of the wing meets a short whitish streak from the inner margin, forming with it an angulated fascia; on the middle of the inner margin is another short whitish streak, dark-margined towards its apex; at the anal angle are a few whitish scales, followed by some fuscous scales; cilia of the hinder margin whitish, with a dark line externally, and a *black hook* from the apex; cilia of the inner margin grey. Posterior wings fuscous, with grey cilia.

Not uncommon in many places among oaks, in April, June, August, and September. The larva feeds in May and the beginning of August; it mines the leaves of the oak (according to Réaumur), mining when young, several in one leaf, in galleries, afterwards forming a common blotch of considerable size.

2. **cuculipennellum**, Hüb. Larvæ, iii.; Treit.; Evers.; Hüb. Tin. 192?—*cinerea*, Hlav.; Step.—*alaudella*, Dup. L. F. xi. pl. 308. f. 1; Zell. L. E. ii.—*Ligustrinella*, Zell. Isis, 1838, 1839. Alis anticis albidis fusco-mixtis, fasciis tribus obliquis, prima prope basim interrupta, secunda ante, tertia pone medium plicam tangente, maculisque posticis saturate fuscis. Exp. al. 6 lin.

Head pale grey, mixed with fuscous. Face whitish. Palpi whitish; terminal joint dark fuscous. Anterior wings *pale grey, or whitish*,

*mixed with fuscous, with three oblique dark fuscous fasciæ, which are nearest the base on the costa, the first near the base sometimes interrupted, the second before the middle, the third a little beyond the middle reaching only to the fold; beyond are several dark fuscous spots; cilia of the hinder margin pale grey, varied with dark fuscous, of the inner margin pale fuscous. Posterior wings grey, with paler cilia.*

Appears in September and October, and hibernated specimens occur in the spring; not uncommon at Whittlebury, also occurs at Dartford Heath. The larva feeds on the privet in August (according to Hübner), rolling up the leaves into cones.

3. **sulphurellum**, Haw. L. B. 564 (1829); Step.?—*leucapennella*, Step.—*citrinella*, F. v. R. pl. 70. f. 2; Zell. Alis anticis dilute sulphureis, atomis numerosis sparsis fuscis, interdum in maculas confluentibus. Exp. al. 6-7 lin.

Head, face, and palpi pale sulphur. Antennæ fuscous, annulated with whitish. Anterior wings *pale sulphur*, intermixed with numerous dark fuscous atoms, which are sometimes confluent, and form dark blotches; cilia of the hinder margin pale sulphur, of the inner margin fuscous. Posterior wings dark grey, with fuscous cilia.

Not uncommon in the autumn in the New Forest, and at Whittlebury; hibernated specimens occur in the spring.

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### Genus III. ORNIX.

ORNIX, Zell. Isis, 1839. p. 210; Dup. Cat. *Trichotripis* p., Hüb. *Ornix* p., Trcit.

*Capilli superne comosi*, in fronte decumbentes. Ocelli nulli. Antennæ alas anteriores longitudine æquantes, tenues, articulo basali elongato, incrassato. Haustellum nudum. Palpi maxillares longiusculi, filiformes. Palpi labiales tenues, subpenduli, cylindrici, articulo secundo squamis appressis, articulo tertio acuminato. Alæ longe ciliatæ, anteriores *oblongo-ovata*, posteriores lanceolatæ; anteriores: e cellule discoidalis parte postica venæ septem oriuntur, apicalis furcata; subcostalis basim versus obsoleta; subdorsalis simplex; posteriores: vena apicalis ante apicem exit, infra eam vena furcata; vena mediana trifida.

*Head above hairy*, in front smooth. Ocelli none. Antennæ as long as the anterior wings, slender, the basal joint elongate, thickened. Tongue naked. Maxillary palpi rather long, filiform. Labial palpi slender, rather drooping, cylindrical, the second joint with appressed scales, the terminal joint pointed. Wings with long cilia, the anterior *oblong-ovate*, the posterior lanceolate. In the anterior wings seven veins arise from the hinder portion of the discoidal cell; the apical

vein is furcate; the subcostal vein is obsolete towards the base; the subdorsal vein is simple. In the posterior wings the apical vein terminates above the apex, below it is a furcate vein; the median vein is trifid.

The habits of the perfect insects of this genus are very similar to those of the *Gracilaria*, but the smaller species are far more frequently observed on the wing. None of this genus pass the winter in the perfect state, all being then in pupa. The larvæ, when young, are true miners, and their mines can with difficulty be distinguished from those of a *Lithocolletis* larva; but as soon as the larva leaves the mine, the fact of its being untenanted, and no pupa-skin protruding, sufficiently demonstrates that it is no *Lithocolletis* mine. After quitting its mine, the larva turns down a piece of the edge of the leaf, and feeds within the cavity thus formed; except in the case of the larva, which feeds on the hawthorn, this turned-down place does not assume the conical form so prevalent with the larvæ of *Gracilaria*; when full-fed, the larva turns down a smaller portion of the edge of the leaf, and spins therein a firm, rather flat, ochreous cocoon.

I enumerate only nine British species of this genus, though probably I have individual specimens of two or three others, but the *extreme similarity* of many of the species renders it extremely unsafe to describe from single *caught* specimens; one of the strongest characters for discriminating the species lying *in the extreme tip of the cilia* of the anterior wings, which can rarely be well seen except in *bred* specimens. On the continent are four or five other distinct species.

The genus may be thus subdivided:—

- a. Anterior wings with numerous short whitish or white streaks from the costa. Species 1–8.
- a a. Anterior wings with three triangular yellowish marks on the costa. Species 9.

1. **Avellanella**, Sta.—*meleagripennella*, Sta. Ent. Trans. i. n. s. 88.—*laxella*, Curt.? Alis anticis *dilute* griseis, dorso albo-farinato, strigulis numerosis costæ albidis, maculis duabus plicæ, una posteriore disci fuscis, puncto apicis fusco; ciliis albidis, *lineis duabus integris* fuscis *ab apice* usque ad angulum analem; palpis albis, articuli tertii *basi annuloque ante apicem fuscis*. Exp. al. 4 lin.

Head whitish, mixed with fuscous. Face grey. Palpi whitish, *the last joint with the base and a ring before the apex fuscous*. Antennæ dark fuscous, annulated with white. Anterior wings *pale* grey, intermixed with white, especially along the inner margin; along the costa are numerous short whitish streaks, obliquely placed till near the apex, the three immediately before the apex nearly straight; in the fold are

two dark fuscous spots, one before, the other beyond the middle; beyond the latter is a dark spot on the disc; in the apex of the wing is a minute dark spot; cilia whitish, with *two entire curved dark lines from the apex to the anal angle*. Posterior wings pale grey, with paler cilia.

Common among nut-bushes in May and August. The larva abundant in nut-leaves in July, September, and October.

2. **Devoniella**, Sta. Ent. Trans. i. n. s. 89 (1850). Alis anticis *ochreis*, dorso albido-farinato, strigulis numerosis costæ obsoletis, macula fusca plicæ pone medium, puncto apicis *atro*; palpis albis. Exp. al.  $4\frac{1}{2}$  lin.

Head ochreous. Face whitish. Palpi white. Antennæ white, with darker annulations. Anterior wings *ochreous*, mixed with whitish, especially along the inner margin; along the costa are numerous indistinct short whitish streaks; in the fold of the wing is a fuscous spot beyond the middle, and at the apex a *distinct* dark brown or *black* spot. Posterior wings pale grey, with ochreous cilia.

A single specimen, taken May 1st, near Dawlish, in Devonshire.

3. **Anglicella**, Sta. Ent. Trans. i. n. s. 92 (1850).—*nebulea*, Haw. ? Step. ?—*meleagripennella*, Haw. ? Step. ? Alis anticis *saturate* griseis, dorso albido-farinato, strigulis numerosis costæ albidis, maculis duabus plicæ, una posteriore disci fusco-nigris, puncto apicis *atro*; ciliis albidis, externe *bis fusco-cinctis*; palpis albis, articuli secundi apice fusco, *tertii annulo lato nigro*. Exp. al. 5 lin.

Head ochreous, mixed with fuscous. Face grey. Palpi white, the extremity of the second joint fuscous; *terminal joint with a broad black ring*. Antennæ dark fuscous, with whitish annulations. Anterior wings *dark* grey, intermixed with white, especially along the inner margin; along the costa are numerous short whitish streaks, those towards the apex being the most distinct, the last one being continued round the apical black spot into the cilia of the hinder margin; in the fold are two dark fuscous spots, one before, the other beyond the middle; beyond the latter on the disc is a smaller dark fuscous spot, bounded externally by a whitish streak; cilia whitish, externally with *two entire dark fuscous lines from the apex to the anal angle*. Posterior wings grey, with paler cilia.

A most abundant species in hedges in the south of England, appearing at the end of April (one of the harbingers of summer), and in May, and again in August. I have bred it from larvae off sloe, and I believe it also feeds on the hawthorn. The larva may be found in July and September.

4. **Betulæ**, n. sp. Alis anticis *saturate* griseis, dorso albido-farinato, strigulis numerosis costæ albidis, maculis duabus plicæ, una posteriore disci nigris, puncto apicis *nigro*; ciliis griseis, linea saturate

fusca ab apicem, linea secunda *sub apicem* usque ad angulum analem, ciliis apicis *externe albis*; palpis albis, articuli tertii annulo lato saturate fusco. Exp. al. 4 lin.

Head greyish-fuscous. Face grey. Palpi white; *terminal joint with a broad dark fuscous ring before the apex*. Antennæ dark fuscous, with paler annulations. Anterior wings *dark* grey, irrorated with whitish, more especially towards the inner margin, with numerous short whitish streaks from the costa; on the fold are two oblong black spots, the second almost in the middle, another lies on the disc beyond the middle; at the apex is a small *black* spot; cilia grey, with a dark grey line from the apex to the anal angle, *and another beyond it below the apex; the tip of the apical cilia being white*. Posterior wings pale grey, with pale greyish-ochreous cilia.

I have twice bred this from larvæ found on birch, in July. A second brood of larvæ feeds in the birch-leaves in September and October.

5. **scutulatella**, n. sp. Alis anticis *fusco-griseis, albo-farinato*, præcipue dorsum versus, strigulis numerosis costæ *albis*, macula duabus oblongis plicæ, una posteriore disci fusco-nigris, puncto apicis *atro*; ciliis albidis, linea saturate fusca ab apicem, linea secunda *sub apicem* usque ad angulum analem, ciliis apicis *externe albis*; palpis albis, *immaculatis*. Exp. al. 4½ lin.

Head whitish, mixed with fuscous. Face grey. Palpi *white, unspotted*. Antennæ fuscous, with whitish annulations. Anterior wings *greyish-fuscous*, irrorated with *white*, especially along the inner margin (having a more speckled appearance than any of its congeners); along the costa are numerous short *white* streaks, the last of which passes round the apical *black* spot to the hinder margin; in the fold are two oblong dark fuscous spots, and beyond is a lesser one on the disc; cilia whitish, with a curved dark line from the apex to the anal angle, beyond which is a second dark line *below the apex*, but the *tips of the apical cilia are white*. Posterior wings pale grey, with paler cilia.

I have taken this on the Dartford Heath fence in June. It is also in the collections of Mr. Douglas and Mr. Weir.

6. **torquillella**, Zell. Ent. Ztg. 1850. p. 161; Sta.—*meleagripennella*, Hüb.? Dup.? Evers.? Alis anticis *saturate* griseis, *glaucescentibus*, dorso albidis, strigulis numerosis costæ *albidis*, *duabus ultimis albis*, maculis duabus plicæ, una posteriore disci nigris, puncto apicis *atro*; ciliis albidis, *externe bis fusco-cinctis*; capillis *ochreo-fuscis*, fronte *grisea*; palpis albis *immaculatis*. Exp. al. 5 lin.

Head *ochreous, mixed with fuscous*. Face grey. Palpi white, *immaculate*. Antennæ dark fuscous, with paler annulations. Anterior wings *dark* grey, with a *slight purple gloss*, with the inner margin whitish, and with numerous short oblique *whitish* streaks along the costa, and two nearly straight short *white* streaks from the costa before the apex, the latter of which is continued round the apical *black* spot

to the hinder margin; in the fold are two oblong black spots, one before, the other beyond the middle, and beyond them is a small dark spot on the disc, preceding the continuation of the costal streak fifth from the apex; cilia whitish, externally *with two curved dark lines from the apex to the anal angle*. Posterior wings pale grey, with paler cilia.

Not common; appears in May and August. The larva feeds in sloe-leaves in July and September; it has been reared by Mr. Logan and myself.

7. **Scoticella**, Sta. Ent. Trans. i. n. s. 94 (1850).—*meleagripennella*, Trcit.? Alis anticis saturate griseis, basi dorsoque albo-farinatis, strigulis numerosis costæ albis, maculis duabus plicæ, una disci posteriore fusco-nigris, puncto apicis atro; ciliis albidis, externe bis fusco-cinctis; capillis albis fusco-mixtis, fronte palpisque albis. Exp. al. 5 lin.

Head white, mixed with fuscous. Face white. Palpi white, immaculate. Antennæ fuscous, annulated with white. Anterior wings dark grey, irrorated with white at the base and along the inner margin, with numerous short white streaks from the costa, the last of which is continued round the apical black spot to the hinder margin; in the fold are two oblong blackish spots, and beyond is a smaller blackish spot on the disc, followed by a short white streak; cilia whitish, with *two curved dark lines from the apex to the anal angle*. Posterior wings grey, with paler cilia.

Abundant in Scotland among mountain-ash, in June. The larva feeds in the leaves of the mountain-ash in August and September. I am not aware that it is double-brooded.

8. **Loganella**, Sta. Zool. 1848. p. 2162. Alis anticis nigro-fuscis, strigulis numerosis costæ, maculis duabus dorsi, strigulaque disci posteriore albis, puncto apicis atro; ciliis albidis, externe fusco-cinctis. Exp. al.  $4\frac{1}{2}$  lin.

Head greyish, mixed with brown. Face grey. Palpi white. Antennæ fuscous, with paler annulations. Anterior wings blackish, with numerous short white streaks along the costa, and *two larger whitish spots on the inner margin*, one before, the other beyond the middle, beyond the latter on the disc is a short white streak; at the extreme apex is a small black spot; cilia whitish, with a curved dark line from the apex to the anal angle. Posterior wings grey, with greyish-ochreous cilia.

A scarce species; appears in June and July. It has been taken in several localities in the west of Scotland, and also in Cumberland.

9. **guttea**, Haw. L. B. 531 (1829); Step.—*guttiferella*, Dup. L. F. xi. pl. 306. f. 12; Zell.—*malinella*, Hüb. Larvæ?—*marginimaculella*, Evers.? Alis anticis brunneis, guttis tribus costæ triangularibus, cum duabus dorsi alternantibus, albidis. Exp. al.  $5\frac{1}{2}$  lin.

Head dark ochreous. Face rather paler. Palpi white. Antennæ

dark fuscous, with paler annulations. Anterior wings dark brown, with three triangular whitish spots on the costa, alternating with two others on the inner margin; cilia brown, with a few whitish scales on the costa before the apex, and in the middle of the hinder margin, and with two rows of darker scales round the apex. Posterior wings greyish-fuscous, with paler cilia.

Common among apple-trees in May and June. The larva feeds in apple-leaves in July and August.

## FAMILY IX. COLEOPHORIDÆ.

Caput superne ac in fronte lævigatum. *Antennæ* articulo basali plerumque penicillato, *in quiete porrectæ*. Palpi maxillares nulli. Palpi labiales tenues, articulo tertio acuminato. *Alæ elongatæ lanceolatæ*.

Head above and in front smooth. *Antennæ porrected in repose*, the basal joint frequently with a tuft of hair. Maxillary palpi none. Labial palpi slender, terminal joint acuminate. *Wings elongate, lanceolate*.

There are only two genera in this family, and one of those contains only one species (*Goniodoma auroguttella*), not at present known as British; consequently we have only the remaining genus to consider.

### Genus I. COLEOPHORA.

COLEOPHORA, Zell. Isis, 1839, p. 206; Dup. Cat. *Porrectaria* p., Haw. *Ornix* p., Treit. *Damophila* et *Porrectaria*, Curt. *Ornix* et *Gracillaria* p., Dup. L. F. xi. *Astyages* p., *Metallosetia* et *Porrectaria*, Step.

Caput superne ac in fronte lævigatum. Ocelli nulli. *Antennæ* articulo basali elongato, incrassato, plerumque penicillato, interdum usque medium squamis incrassatæ. Haustellum squamatum. Palpi labiales tenues, subporrecti, articulo secundo fasciculo tenui producto, articulo tertio acuminato. *Alæ elongatæ, lanceolatæ, longe ciliatæ*; anteriores: vena subcostalis basim versus obsoleta; vena e cellula discoidalis in costam tres, in apicem una, in marginem posticum tres; vena subdorsalis longe furcata; posteriores: vena apicalis furcata supra et infra apicem exit; vena discoidalis simplex, mediana bifida. Larva saccophora, metamorphosis *intra saccum*.

Head above and in front smooth. Ocelli none. *Antennæ* sometimes thickened with scales to the middle, basal joint elongate and thickened, frequently with a tuft of hair. Tongue scaled. Labial palpi slender, rather porrected, with a slender prolonged tuft from the second joint,



the third joint pointed. Wings elongate, lanecolate, with long cilia. In the anterior wings the subcostal vein is obsolete towards the base; from the discoidal cell three veins run to the costa, one to the apex, and three to the hinder margin; the subdorsal vein has a long fork. In the posterior wings the furcate apical vein terminates above and below the apex; the discoidal vein is simple; the median bifid. The larva a case-bearer, changing to a pupa *within the case*.

The species of this genus are rather numerous, no less than forty-one British being already known, and many others occur on the continent. The perfect insects of some species may be found commonly on palings and trunks of trees, but the greater part lead a very retired life, and are rarely seen; the tree-feeding species may be observed in windy weather, flying on the lee-side of the trees, endeavouring to resume their position on the branches, from which the agitation of the foliage had dislodged them; the other species are rarely met with on the wing, and fly only for short distances if accidentally started from their retreats. Some of the species are of brilliant metallic colours, others of a uniform brown or ochreous, but the greater part are distinguished by pale longitudinal streaks upon a dark ground. The larvæ are especially distinguished by their cases and their mode of feeding. The cases are constructed either entirely of silk, or of two cuticles of a mined leaf fastened together and lined with silk; the form of the case is extremely varied, and is frequently of service to distinguish closely-allied species. The very young larvæ are in most instances miners till they have mined a sufficient portion of leaf to furnish them with a case; they then cut out their case, and attach it to the underside of the leaf, when they make a circular hole in the lower cuticle of the leaf, and proceed to devour the parenchyma, gradually inserting a larger portion of their body into the leaf as they consume the parenchyma near the entrance-hole, and have to reach further: thus they not unfrequently may be found quite out of the case, and wholly within the leaf; this always happens when they are preparing to make a fresh case; then they eat in one continuous direction till they have excavated a sufficient portion, which they sew together and cut out, leaving the old case attached to the leaf. The mined places are frequently very conspicuous, being whitish or brown, and *the round hole in the cuticle of the leaf* sufficiently shows it to be the work of a *Coleophora* larva, even though the larva be not there. The larvæ of some of the species feed on seeds, attaching the case to the outside, and boring in. All the species appear to remain a long time in the larva state (some as much as nine months), and to be in that state during the winter months.

The British species of the genus may be arranged in the following table:—

- a.* Anterior wings brilliant metallic greenish, or bronze. Species 1–5.
- a a.* Anterior wings not greenish or bronze, and not unicolorous.
  - b.* Antennæ much thickened with scales towards the base. Sp. 6–9.
  - b b.* Antennæ hardly thickened with scales towards the base, or quite bare.
  - c.* Antennæ with a tuft of hair at the basal joint. Species 10–17, and 20.
  - c c.* Antennæ with no tuft of hair at the basal joint. Species 18, 19, 21–29.
- a a a.* Anterior wings not greenish or bronze, quite unicolorous, or only with the costa slightly paler. Species 30–41.

Many of the species are so extremely similar, and yet each species has a considerable range of variation, that it is no easy matter to decide from single specimens taken on the wing (and frequently in rather wasted condition) to which species they should be referred, or whether they are not, in fact, new species; to pronounce with certainty on such points, we require to know the larvæ. It thus happens that many species I had previously catalogued as distinct, I have here united as synonyms of one species; yet that I am correct in so doing can only be proved by the discovery of the larvæ being identical. Of some species, which I have no doubt are distinct from any here enumerated, I possess specimens, but in a condition too wasted to enable me to describe them.

1. **Fabriciella**, Vill. E. L. ii. 527. 1077 (1789).—*spissicornis*, Haw.; Curt.; Step. pl. 41. f. 1.—*Mayrella*, Zell.; Hüb. 322?—*lusciniapennella*, Evers. Alis anticis nitidis viridi-vencis, apicem versus cupreis; antennis dimidio basali squamis cupreis dense vestito, ceterum albo nigro-annulato. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi greenish-bronze. Antennæ thickly clothed with coppery scales to the middle, then sharply annulated black and white. Anterior wings shining bronzy-green, towards the apex coppery; cilia purplish-grey. Posterior wings grey, with paler cilia.

Appears in June and July; sometimes very plentiful in meadows, and in dry flowery places.

2. **deauratella**, Lienig, Isis, 1846, p. 295; Zell.; Sta.—*Trifolii*, Step.? Alis anticis nitidis viridi-vencis, apice cupreo; antennis fuscis, articulo basali ac sequentibus squamis cupreis vestitis, apice albo. Exp. al.  $6-6\frac{1}{2}$  lin.

Head, face, and palpi dark bronzy-green. Antennæ dark fuscous, the basal joint much thickened, and several of the succeeding joints slightly so with coppery scales, the apex white. Anterior wings bronzy-green,

the apex coppery; cilia purplish. Posterior wings dark grey, with paler cilia.

Occurs in July among clover, but scarce.

3. **alcyonipennella**, Kollar, Verz. der nied. ost. Schm. p. 99; Dup.; Zell.; Sta.; Dougl. Ent. Trans. ii. n. s. 80. pl. xi. f. 2. Alis anticis viridi-æneis; antennis articulo basali vix incrassato, saturate viridi-æneis, articulis septem ultimis albis. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi dark bronzy-green. Antennæ with the basal joint only very slightly thickened, dark bronzy-green, the last seven joints white. Anterior wings shining bronzy-green; cilia greyish-bronze. Posterior wings grey, with grey cilia.

Appears in July among *Centaurea nigra*, but the perfect insect is rarely met with. The larva is more readily found, and is nearly full-fed in May; it has a nearly straight cylindrical dark brown case, and makes rather transparent pale brownish blotches on the leaves of the *Centaurea nigra*. It has been found in various parts of the country, near Liverpool, Dublin, Mickleham, etc.

4. **Frischella**, Linn. S. N. (10) 541. 289 (1758); W. V.; Zell.; Sta.—*Trifolii*, Curt. B. E. fo. 391. Alis anticis nitidissimis viridi-æneis apice cupreo; antennis, articulo basali vix incrassato, fuscis, apice albo. Exp. al. 8–9 lin.

Head, face, and palpi bronzy-green. Antennæ fuscous, with the terminal joints white, the basal joint hardly thickened with bronzy-green scales. Anterior wings extremely shining, bronzy-green, with the apex coppery; cilia purplish-grey. Posterior wings grey, with paler cilia.

Mr. Dale met with this species rather plentifully among trefoil flowers, near the shore in the Isle of Portland, and at Charmouth, in Dorsetshire, July 11th and 14th, 1831.

5. **paripennella** (F. v. R.), Zell. Isis, 1839, p. 208; Sta. Alis anticis fusco-æneis; antennis fuscis, apice albo. Exp. al. 5 lin.

Head blackish-green. Face rather silvery. Palpi yellowish. Antennæ dark fuscous, with the apex white, the basal joint scarcely thickened. Anterior wings fuscous-bronze (comparatively short and broad), with paler cilia. Posterior wings grey, with paler cilia.

Appears in June, and found occasionally in hedges and on fences. The cases containing the full-fed larva or pupa are found in April or May attached to palings, trunks of trees, etc.; they may be immediately recognized by the rugose projections on the upper side, the mouth is turned round nearly at right angles, whereby the case is parallel to the surface to which it is attached, and is much less easily seen than if it projected, as usual, at an angle of about  $45^\circ$ ; in other respects the case has no peculiarity, being rather short, straight, cylindric, but rather attenuated behind. The larva which, I believe, belongs to this species, feeds

up in autumn; it is polyphagous, and I have found it on sloe, nut, birch, bramble, etc.

6. **Wockeella**, Zell. L. E. iv. 215 (1849); Sta. Alis anticis brunneis, apice producto, venis albidis, costa tenuissime alba, postice dilute-ochrea; antennis albis, nigro-annulatis, apice albo, *dimidio basali in dorso longius piloso cristato*, articuli basalis penicillo griseo. Exp. al. 10 lin.

Head and face pale greyish-brown. Palpi whitish. Antennæ whitish, annulated with black to near the apex, *the basal half clothed with long dark hairs on the back*, the basal joint with a little grey tuft. Anterior wings brown, with the apex produced; the principal veins are faintly white; the costa is narrowly white, posteriorly pale ochreous; cilia brown. Posterior wings grey, with paler cilia.

Two specimens were taken by Mr. Weir, at Pembury, a few years back. Last summer he bred a third from a dark brown slightly curved case he found attached to a leaf of *Genista tinctoria*, although there were no symptoms that the larva had fed upon that plant.

7. **ochrea**, Haw. L. B. 533 (1829); Step.; Zell. L. E. iv.; Sta. —*argentipennella*, Dup. L. F. xi. pl. 310. f. 3; Zell. Isis, 1847.—*happella*, Zell. Isis, 1839. Alis anticis ochreis, costam versus saturatioribus, *dorso anguste lineaque plicæ argenteis*; antennis albis (penicillo basali longo ochreo), squamis ochreis usque medium vestitis. Exp. al. 9 lin.

Head, face, and palpi ochreous. Antennæ clothed with ochreous hairs to near the middle, then unicolorous white, the basal joint with a long ochreous tuft. Anterior wings ochreous, rather darker towards the costa, *with a silver streak along the fold, and a narrow one on the inner margin*; cilia greyish-ochreous. Posterior wings fuscous, with paler cilia.

Occurs at Riddlesdown in July and August, but more commonly near Bristol. The cases have been found on the seeds of *Potentilla argentea*.

8. **binotapennella** (F. v. R.), Dup. L. F. Sup. iv. 295. pl. 75. f. 3 (1842).—*binotatella*, Zell.; Sta. Alis anticis obscure ochreis, *punctis duobus obsoletis, uno in medio plicæ, altero posteriore disci, saturate fascis*; antennis albis, fusco-annulatis, basium versus squamis ochreis in dorso vestitis, articuli basalis penicillo brevi ochreo. Exp. al.  $6\frac{1}{2}$  lin.

Head, face, and palpi ochreous. Antennæ white, annulated with fuscous, clothed with ochreous scales on the back towards the base, with a rather short ochreous tuft at the basal joint. Anterior wings dull ochreous, *with two indistinct dark fuscous spots*, one about the middle of the fold, the other on the disc towards the hinder margin; cilia dull ochreous. Posterior wings pale grey, with pale ochreous cilia.

Taken in August last, on the coast near Brighton, by Mr. Hemmings and Mr. Douglas, among *Salicornia* and *Chenopodium maritimum*.

9. **Lixella**, Zell. L. E. iv. 231 (1849); Sta.—*ornate*a, Haw.—*ornatipennella*, Step.; Dup.? Alis anticis dilute luteis, apice incurvo producto, linea plicæ, lineola disci, lincolis quinque obliquis costam versus argenteis, *fusco-marginatis*; antennis albis, basim versus squamis albis vestitis, articuli basalis penicillo longo albido. Exp. al.  $8\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ white, slightly clothed with white scales near the base, with a long yellowish-white tuft at the basal joint. Anterior wings with the apex prolonged and curved, pale yellow, with a silvery streak along the fold, a short one a little above it on the disc, and five short oblique silvery streaks towards the costa; *all these streaks are margined with fuscous*; the inner margin is also narrowly silvery; cilia pale fuscous. Posterior wings fuscous, with paler cilia.

Occurs at Mickleham, Sanderstead, and near Bristol, at the end of June and beginning of July. The larva feeds (according to Zeller) on the leaves of *Holcus lanatus*.

10. **vibicella**, Hüb. 308 (1816); Zell.; Sta. — *vibicipennella*, Treit.; Dup.; Evers.; Weaver. Alis anticis *ochreis*, lineola obliqua *pone medium* juxta costam lineola angulata disci (spatio interjecto brunnescente), lineolaque plicæ, argenteis; antennis albis, articuli basalis penicillo longo *ochreo*. Exp. al.  $9\frac{1}{2}$  lin.

Head *ochreous*. Face and palpi silvery. Antennæ white, with a long *ochreous* tuft at the basal joint. Anterior wings *ochreous*, with three silvery streaks, one on the subcostal vein *commencing near the middle* of the wing, not reaching to the costa, one slightly angulated on the disc (the space between these two is brownish, which colour is continued to the apex of the wing), and one along the fold terminating before the anal angle; cilia grey. Posterior wings grey, with paler cilia.

I am not aware of any collector having detected this insect in this country, except Mr. Weaver, who found the larvæ in Trench Wood, Worcestershire, in the first week of June, 1844. The larvæ feed on the *Genista tinctoria*, in firm, shining black cases, which, as Mr. Weaver remarks, are not unlike the ripe pods of some papilionaceous plants.

11. **conspicuell**a (Mann.), Zell. L. E. iv. 236 (1849); Sta. Alis anticis *dilute luteis*, linea prope costam *a basi usque apicem* lineola angulata disci (spatio interjecto brunnescente), linea plicæ, *dorsoque anguste* argenteis; antennis albis, articuli basalis penicillo longo *albido*. Exp. al. 9 lin.

Head, face, and palpi *whitish*. Antennæ white, with a long *whitish* tuft at the basal joint. Anterior wings *pale yellow*, *with the inner margin narrowly silvery*, and with three silvery streaks, one near the costa, *commencing at the base*, and continued to immediately before the apex,

one slightly angulated on the disc before the anal angle (the space between these two is brownish), the third is on the fold; cilia pale grey. Posterior wings pale grey, with ochreous-grey cilia.

A single specimen was taken by Mr. Bedell, in Headley-lane, near Mickleham, July 12th, 1847. The larva feeds on *Centaurea scabiosa*, in a rather large, slightly-curved, somewhat flattened brown case. Mr. S. Stevens has twice found it in the hilly field at Headley-lane, in June, but has not succeeded in breeding the perfect insect.

12. **pyrrhulipennella** (Tischer), Zell. Isis, 1839, p. 206; Sta.—*vibicigerella*, Dup.? Alis anticis grisco-ochreis, costam versus saturatioribus, costa, lincola *parum angulata* disci, linea plicæ, dorsoque *niveis*; antennis albis fusco annulatis, articuli basalis penicillo *griseo*. Exp. al. 6 lin.

Head and face greyish-ochreous. Palpi white. Antennæ white, annulated with dark fuscous, the basal joint with a grey tuft. Anterior wings greyish-ochreous, darker towards the costa, with the costa and inner margin *snowy* white, a *slightly angulated snowy* white streak on the disc above the anal angle, and a *snowy* white streak along the fold reaching to the anal angle, where it appears to run into the white hinder margin; cilia greyish-ochreous. Posterior wings dark grey, with paler cilia.

Occurs in June and July on heaths; has been taken at Dartford Heath, Wimbledon Common, and near Huddersfield. The larva feeds on *Calluna vulgaris* and *Erica cinerea* in autumn and spring, and the shining black cases of the full-fed larvæ may be found in May.

13. **albicosta**, Haw. L. B. 535 (1829); Step.; Curt. B. E. fo. 687; Zell.; Sta. Alis anticis *dilute* grisco-ochreis, costam versus saturatioribus, costa lincola *ferè recta* disci, lineaque plicæ *albis*; antennis albis, fusco-annulatis, articuli basalis penicillo *brevi ochreo*. Exp. al. 7 lin.

Head greyish-ochreous. Face and palpi whitish. Antennæ white, annulated with fuscous, the basal joint with a *short ochreous* tuft. Anterior wings *pale* greyish-ochreous, darker towards the costa, with the costa *white*, and with a *short white* streak on the disc commencing near the middle of the wing, and a *white* streak on the fold; a short white streak runs along the hinder margin at the apex; cilia greyish-ochreous. Posterior wings grey, with greyish-ochreous cilia.

Very common amongst furze-bushes at the end of May and in June.

14. **Vulnerariæ**, Zell. Isis, 1839, p. 207; Sta.—*icterella*, Dup.? Alis anticis *dilute luteis*, costa, lincola disci *ferè recta*, linea plicæ, dorsoque *argenteo-albidis*, squamis *fuscis parce marginatis*; antennis albis fusco-annulatis, basin versus squamis albidis vestitis, articuli basalis penicillo breviusculo albedo. Exp. al. 6 lin.

Head, face, and palpi white. Antennæ white, annulated with dark grey, the three first joints slightly thickened with whitish scales, the basal joint with a rather short whitish tuft. Anterior wings pale yellow, with the costa and inner margin, a nearly straight streak on the disc beyond the middle, and a streak along the fold *silvery white, with some dark fuscous scales on the margins of these streaks*; cilia pale fuscous. Posterior wings dark greyish-fuscous, with paler cilia.

Appears in June and July; specimens have occurred near Deal.

15. **anatipennella**, Hüb. Tin. 186 (1801); Treit.; Step.—*Tiliella*, Schr.; Zell.; Sta.—*anatipennis*, Ilaw.? Alis anticis albis, *squmis sparsis fuscis*, præcipue apicem versus; antennis albis, fuscescente annulatis, articuli basalis penicillo longo albido. Exp. al.  $7\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ white, annulated with pale fuscous, the basal joint with a long whitish tuft. Anterior wings white, *with numerous scattered fuscous scales*, especially towards the apex; cilia white, with the ends fuscous. Posterior wings fuscous, with paler cilia.

Not uncommon in hedges in June and July. The larva has a brown-black case, somewhat in the form of a pistol, which (according to Réaumur's observations) is entirely constructed of silk spun by the larva, and afterwards coloured by a peculiar viscid secretion of the larva; the larva is not uncommon in May, on sloe and other trees.

16. **palliatella**, Zincken, g. S. Germ. Mag. i. 40 (1813); Zell.; Sta.—*palliipennella*, Treit.; Dup.? Alis anticis albis, postice *venis obsolete fuscis*, costa ipsa fusca; antennis albis fusco-annulatis, articuli basalis penicillo longo albido. Exp. al. 8 lin.

Head, face, and palpi white. Antennæ white, annulated with fuscous, the basal joint with a long whitish tuft. Anterior wings white, *with the veins towards the apex indistinctly fuscous*, and the extreme costa fuscous; cilia pale fuscous. Posterior wings fuscous, with paler cilia.

Not an uncommon species, appearing in June and July. The larva is polyphagous. Mr. Bond met with it plentifully on sallow a few years back; the case somewhat resembles that of the preceding, but has in addition a large appendage or flap on each side, almost entirely concealing the actual case; these flaps, like the case, are (according to Réaumur's observations) entirely formed of silk.

17. **currucipennella** (F. v. R.), Zell. Isis, 1839, p. 247; Sta. Alis anticis niveis, *venis late luteis, postice brunnescentibus*; antennis albis fusco-annulatis, articuli basalis penicillo longo ochreo. Exp. al. 7 lin.

Head, face, and palpi whitish. Antennæ white, annulated with fus-

cous, the basal joint with a long ochreous tuft. Anterior wings white, *with the veins broadly yellowish, towards the apex inclining to brown*; costal cilia brown, at the tips white; hinder marginal cilia pale fuscous. Posterior wings fuscous, with paler cilia.

Appears in June and July, but nowhere common. The larva, which feeds on oak, is full-fed in May; the case is somewhat like that of *anatipennella*, but has several little projections on the back; it has been found at Epping and Wimbledon Common.

18. **niveicostella** (F. v. R.), Zell. Isis, 1839, p. 208; Sta.; Dup.? Alis anticis ochreis, costam versus saturatoribus, costa nivea; antennis albis, articulo basali incrassato, *non penicillato*, ochreo. Exp. al.  $6\frac{1}{2}$  lin.

Head and face pale ochreous. Palpi whitish. Antennæ *white*, the basal joint thickened, *with no tuft*, ochreous. Anterior wings ochreous, darker towards the costa; the costa narrowly white to near the apex; cilia pale ochreous. Posterior wings grey, with paler cilia.

Has occurred at Mickleham and at Dartford Heath, in June and July.

19. **discordella**, Zell. L. E. iv. 301 (1849); Sta.—*gallipennis*, Haw.?—*galipennella*, Step.? Treit.? Alis anticis ochreis, costam versus saturatoribus, costa, *linea tenuissima plicæ, dorsoque angustæ* niveis; antennis albis fusco-annulatis, articulo basali incrassato, *vix penicillato*, griseo. Exp. al. 6 lin.

Head greyish-ochreous. Face and palpi whitish. Antennæ white, annulated with fuscous, the basal joint grey, slightly thickened, with a few projecting scales beneath, but hardly sufficient to be considered a tuft. Anterior wings *ochreous*, darker towards the costa, with the costa nearly to the apex white, and *with a very slender white streak along the fold and the inner margin narrowly white*; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

The perfect insect is occasionally met with in June and July, and has occurred in various localities, but is nowhere abundant. Mr. Shield, who discovered the larva of this species, finds the cases abundantly on *Lotus corniculatus*, near Dublin, in May. The young larvæ begin feeding in autumn; the brown case is rather curved, almost hooked at the end, and has a flounced appearance; the mined leaves appear very white.

20. **saturatella**, Sta. Zool. 1850. App. xciii. Alis anticis *saturate brunneo-ochreis*, costa *latius, lineola angulata interruptaque disci*, linea tenuissima plicæ, dorsoque angustæ niveis; antennis albis, articuli basalis grisei *penicillo brevi griseo*. Exp. al. 7 lin.

Head greyish-white. Face and palpi white. Antennæ white, the basal joint grey, *with a short grey tuft*. Anterior wings *dark brownish-ochreous*, with the costa to near the apex *rather broadly white, an extremely narrow slightly angulated and interrupted streak on the disc*, a



very narrow streak on the fold, and the inner margin narrowly white; cilia at the apex dark fuscous, below paler. Posterior wings pale grey, with paler cilia.

Occasionally met with amongst broom in July.

21. **Onosmella**, Brahm, Scriba's Beit. ii. 133-140. pl. 9. f. 7, 8 (1791); Zell.; Sta.—*struthionipennella*, Treit.; Step.; Dup.; Hüb. Tin. 209?—*pennella*, W. V.? Alis anticis albis, venis tenuibus ochraceis; antennis albis, subtus fusco-punctatis, articulo basali incrassato, *via griseo-penicillato*. Exp. al. 9-10 lin.

Head, face, and palpi whitish. Antennæ white, spotted with fuscous beneath, the basal joint slightly thickened, with a few projecting greyish scales beneath. Anterior wings white, with slender ochreous veins; cilia greyish. Posterior wings grey, with greyish-fuscous cilia.

Common among *Echium vulgare* in July. The larva feeds on that plant from autumn to June, in cases formed of pieces of the mined leaves; these cases are very broad, almost triangular, dirty grey, and from the prominent stiff hairs of the leaves have a singular appearance; the young larvæ, in autumn, mine sufficient for the construction of the case, but do not detach it from the leaf till the spring, it consequently only appears as a portion of withered leaf. The larva was first observed by Brahm on *Onosma echioides*; it feeds also on *Anchusa*.

22. **therinella** (Zell.), Tengström, F. F.-F. 141. 7 (1847); Zell.; Sta. Alis anticis *angustulis* albis, venis dilatatis ochreis, *postice confluentibus*, costa anguste alba; antennis albidis fuscescente-annulatis, articulo basali incrassato, non penicillato. Exp. al. 7 lin.

Head, face, and palpi pale ochreous. Antennæ whitish, annulated with pale fuscous, the basal joint slightly thickened, not tufted. Anterior wings *narrow*, white, unspotted, with the veins rather broadly ochreous, posteriorly confluent; the costa is narrowly white to near the apex; cilia ochreous. Posterior wings grey, with paler cilia.

Appears in June and July in grassy places, but hitherto very scarce; I only know of two specimens which I can unhesitatingly refer to this species, of which one is in Mr. Wilkinson's collection, and the other in my own.

23. **troglodytella**, Zell. L. E. iv. 322 (1849); Sta.; Dup.?—Var.? *Inule*, Dougl.; Sta. Alis anticis *latiusculis argenteo-albis*, venis *distinctis* ochreis; antennis albis fusco-annulatis, articulo basali incrassato, non penicillato. Exp. al. 7 lin.

Head, face, and palpi ochreous-white. Antennæ white, annulated with fuscous, the basal joint slightly thickened, not tufted. Anterior wings *rather broad, silvery white*, unspotted, with the veins bright ochreous; the costa is narrowly white to near the apex; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

Not commonly met with in the perfect state, appearing in June and July amongst *Eupatorium cannabinum* and *Inula dysenterica*, on the leaves of which plants the larva feeds in May, in a long, nearly straight, cylindrical case of a uniform dirty-ochreous colour, except a brown patch on the basal half of the back. The specimens Mr. Douglas bred from the *Inula* have narrower anterior wings than the typical insect, which I have bred both from *Inula* and *Eupatorium*, and the cases, though similar in form and colour, were much smaller; it is possible it may yet prove a distinct species.

24. **lineolea**, Haw. L. B. 534 (1829); Step.; Sta.—*crocogrammos*, Zell. Alis anticis *latiusculis* albis, venis dilatatis ochreis, postice confluentibus, costa late usque medium alba; alis posticis griseis, ciliis ochreo-griseis; antennis albis totis, vel fusciscenti-annulatis, articulo basali incrassato, non penicillato. Exp. al.  $6\frac{1}{2}$  lin.

Head, face, and palpi pale ochreous. Antennæ white, unannulated or annulated with pale fuscous, the basal joint slightly thickened, not tufted. Anterior wings *rather broad*, white, with the veins pale ochreous, posteriorly confluent; the costa is *broadly* white nearly to the middle; cilia greyish-ochreous. Posterior wings grey, with ochreous-grey cilia.

Common in June and July among *Stachys sylvatica* and *Bal-lota nigra*, on which plants the larva may be found from March to May. It feeds on the leaves; the places mined by it are of a pale brown colour; the case is rather flat, angulated at each side, and is extremely hairy.

25. **murinipennella** (F. v. R.), Zell. L. E. iv. 334 (1849); Sta.—*leucapennis*, Haw.?—*leucapennella*, Step.? Alis anticis *angustis* albidis, venis dilatatis griseo-ochreis, postice confluentibus; antennis albis, fusco-annulatis, articulo basali vix incrassato albido, non penicillato. Exp. al. 6 lin.

Head, face, and palpi greyish-ochreous. Antennæ white, annulated with fuscous, the basal joint whitish, scarcely thickened and not tufted. Anterior wings *narrow*, white, *with the veins rather broadly greyish-ochreous*, posteriorly confluent, and, in the male especially, much concealing the ground-colour; cilia pale greyish-ochreous. Posterior wings grey, with paler cilia.

Common in flowery meadows in May and June.

26. **cæspititiella**, Zell. Isis, 1839, p. 208; Sta.—Var. ? *alticolella*, Zell.; Sta.—Var. ? *lacuniolella*, Zell.; Sta. Alis anticis *angustis acutis nitidis*, griseo-ochreis, vel griseo-luteis, costa anguste alba; antennis albis fusco-annulatis, articulo basali fusciscente parum incrassato, non penicillato. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi greyish-ochreous. Antennæ white, annulated

with fuscous to near the apex, the basal joint pale fuscous, slightly thickened, not tufted. Anterior wings *narrow, acute, shining, greyish-ochreous* or greyish-yellow, with the costa narrowly white to near the apex, where it is lost in the whitish-ochreous cilia. Posterior wings grey, with paler cilia.

Specimens in which the costa of the anterior wings is only paler, and not distinctly white, have been reputed distinct species, but I fancy improperly.

Very common amongst rushes in June. The larva feeds from September to May on the seeds of the rush, frequently completely quitting its small whitish case to burrow into the seeds.

27. **annulatella** (Nylander), Tengström, F. F.-F. 143. 12 (1847); Zell.; Sta.—*vestianella*, Lin.? Fab.? Alis anticis acuminatis, griseo-ochreis, inter venas squamis nigris albisque sparsis, costa anguste albida; antennis albis fusco-annulatis, articulo basali fuscescente, non penicillato. Exp. al. 7 lin.

Head and face greyish-ochreous. Palpi white. Antennæ white, annulated with fuscous, the basal joint pale fuscous, not tufted. Anterior wings acuminate, greyish-ochreous, or dark greyish-ochreous, with some scattered black and white scales between the veins; the costa is narrowly dirty-white to beyond the middle; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

Very common in July and August among *Chenopodium* and *Atriplex*; the larva feeds in the autumn on the seeds of those plants in a rather short whitish-grey silken case, externally covered with grains of sand.

This species, like many of its congeners, is extremely variable, and I strongly suspect that *Fluvaginella*, Lienig (Zell. L. E. iv. 353), is only one of the phases of it.

28. **argentula**, Zell. L. E. iv. 368 (1849); Sta.; Step.—*olidipennella*, Hüb. Tin. 433? Dup.? Alis anticis latiusculis, albis, venis dilatatis ochreis, interstitiis albis parce fusco-squamatis; antennis albis fusco-annulatis, articulo basali incrassato albido, non penicillato. Exp. al. 6 lin.

Head and face pale greyish-ochreous. Palpi whitish. Antennæ white, annulated with fuscous, the basal joint somewhat thickened, whitish, not tufted. Anterior wings rather broad, white, with the veins broadly ochreous; in the intervening white spaces are a few scattered dark fuscous scales; the costa is narrowly white to beyond the middle; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

Not common; occurs amongst yarrow (*Achillea Millefolium*) in July. The larva feeds in the autumn on the seeds of the yarrow in a rather short whitish case; it remains in the larva state throughout the winter and spring.

29. **hemerobiella**, Scop. F. C. 252. 650 (1763); Schr.; Zell.; F. v. R. pl. 69. pl. 70. f. 1.—*anseripennella*, Hüb. Tin. 319; Treit.; Step.; Dup. Alis anticis albis fusco-irroratis, puncto postico fusco; antennis albidis nigro-annulatis, articulo basali grisco-fusco non penicillato. Exp. al. 8 lin.

Head pale grey. Face and palpi dark grey. Antennæ whitish, annulated with dark fuscous; the basal joint greyish-fuscous, slightly thickened, not tufted. Anterior wings white, with numerous scattered fuscous scales, and with a more conspicuous fuscous spot above the anal angle; cilia greyish-fuscous. Posterior wings fuscous, with paler cilia.

Appears in orchards in July; occurs at Putney and Hammer-smith plentifully in the larva state. The larva has a large, nearly straight, cylindrical, dark brown case; it feeds on the pear, plum, and cherry in May.

30. **juncicolella**, Sta. Sup. Cat. p. 7 (1851). Alis anticis ochreogriseis, unicoloribus; antennis fuscis, articulo basali vix incrassato, non penicillato. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi ochreous-grey. Antennæ unannulated, dark fuscous; the basal joint slightly thickened, not tufted. Anterior wings ochreous-grey, with paler cilia. Posterior wings grey, the apex extremely pointed, with pale grey cilia.

Has occurred in July among rushes at Kilmun and near Folkstone; in Mr. Douglas's collection and in my own.

31. **Laricella**, Hüb. Tin. 427 (1816); Dup.; Zell.; Sta.—*laricinella*, Ratz.—*argyropennella*, Treit. Alis anticis fusco-griseis unicoloribus; antennis ♂ fuscis, ♀ albidis fusco-annulatis, articulo basali vix incrassato, fusco, non penicillato. Exp. al. 4–5 lin.

Head, face, and palpi shining grey. Antennæ of the ♂ fuscous, of the ♀ whitish, annulated with fuscous; the basal joint slightly thickened, fuscous, not tufted. Anterior wings greyish-fuscous, with paler cilia. Posterior wings pale grey, with paler cilia.

Common among larches in June; the larva has a short, dirty-white case, and feeds on the leaves of the larch in autumn and spring.

32. **albitarsella**, Zell. L. E. iv. 378 (1849); Sta.; Dougl. Ent. Trans. ii. n. s. 79. pl. xi. f. 1.—*monacella*, Schr.? Alis anticis nitidis violaceo-nigris; antennis albis nigro-annulatis, basin versus violaceo-nigris, apice longe albo, articulo basali parum incrassato, penicillo brevi; pedibus griseis, tarsis albis. Exp. al. 5–6 lin.

Head violet-black. Face and palpi silvery-grey. Antennæ with the slightly enlarged basal joint and several of the succeeding joints violet-grey, then white, annulated with black; the apex entirely white. Anterior wings shining violet-black, with paler cilia. Posterior wings grey, with paler cilia. Legs shining grey; the tarsi white.

Appears in June and July among ground-ivy (*Glechoma hederacea*), but rarely met with in the perfect state. The larva feeds from November to April on the leaves of the ground-ivy, but only on such plants as grow completely in the shelter of a hedge; the mined places are at first whitish, but afterwards become of a pale dirty-brown; the case is rather long, slightly curved, dark brown. The larva also (according to Bruand) feeds on *Origanum*.

33. **nigricella**, Step.; Sta.—*lusciniapennella*, Bouché.—*coracipennella*, Zell.; Hüb.? Dup.? Step.?—*serratella*, Lin.?—*spinella*, Schr.? Alis anticis fusco-nigris, unicoloribus; antennis albis fusco-annulatis, articulo basali incrassato fusco-grisco, non penicillato. Exp. al. 5 lin.

Head and face greyish-brown. Palpi paler. Antennæ white, annulated with dark fuscous; the basal joint slightly thickened, greyish-brown, not tufted. Anterior wings unicolorous, fuscous-black, with paler cilia. Posterior wings dark grey, with paler cilia.

Abundant among hawthorn in June and July. The larva feeds on the leaves of the hawthorn, apple, pear, and sloe in May, in nearly straight cylindrical brown-black cases; the case of the young larva, which commences feeding in autumn, is curved, somewhat like a cornucopia. A larva probably also referable to this species feeds in May on the leaves of the birch.

34. **fuscadinella**, Zell. S. E. iv. 383 (1849); Sta.—*obscura*, Haw.?—*obscorella*, Step.? Alis anticis fusco-griseis unicoloribus; antennis albidis, fusco-annulatis, apice albido, articulo basali incrassato fusco, non penicillato. Exp. al. 6 lin.

Head, face, and palpi brownish-grey. Antennæ whitish, annulated with fuscous, more faintly so towards the apex; the basal joint slightly thickened, fuscous, not tufted. Anterior wings unicolorous fuscous, more or less tinted with grey, with paler cilia. Posterior wings fuscous, with paler cilia.

Abundant among elms and alders in July. The larva feeds in May and June on the leaves of those trees in a brown case, rather stouter than that of *nigricella*; the young larva has a curved case.

It is of the larva of this species that Mr. Spence has described the operations, from his own observations, on some larvæ upon the alders in the Hull Botanic Garden (Kirby and Spence, 4th edit. vol. i. p. 459). Larvæ probably referable to this species feed on the nut and hornbeam.

35. **orbitella**, Zell. L. E. iv. 385 (1849); Sta. Alis anticis nitidis griseo-fuscis unicoloribus; antennis niveis fusco-annulatis, apice albo, articulo basali graciliore, griseo-fusco, non penicillato. Exp. al. 6 lin.

Head and face greyish-brown. Palpi paler. Antennæ snowy-

white, annulated with dark fuscous; the apex white; the *rather slender* basal joint is greyish-fuscous, not tufted. Anterior wings *shining* greyish-fuscous, with paler cilia. Posterior wings grey, with paler cilia.

I have four specimens, taken at West Wickham, at Lewisham, and in the Isle of Arran, in June and July.

36. ***gryphipennella***, Bouché, *Naturgeschichte*, 131 (1834).—*rhodophagella*, Koll.—*lusciniæpennella*, Zell.; Sta. *Alis anticis latiusculis*, ochreo-griseis (♀ fere ochreis); antennis *niveis nigro-annulatis*, articulo basali graciliore, ochreo-griseo, non penicillato. Exp. al. 6 lin.

Head, face, and palpi greyish-ochreous. Antennæ *snowy-white*, *annulated with black*; the slender basal joint greyish-ochreous, not tufted. Anterior wings *rather broad*, greyish-ochreous (the latter colour prevailing in the ♀); the cilia unicolorous with the wing. Posterior wings grey, with paler cilia.

Common among roses in June. The larva feeds in April and May on the leaves of the rose, and is sometimes so numerous as to be rather a pest in gardens, disfiguring the plants, from the bleached appearance of the mined leaves; the case is dirty greyish-ochreous, slightly curved, strongly serrated on the back; the young larva commences feeding in the autumn, but attaches itself to the stem on the fall of the leaves, remaining inactive till the spring.

As this species is one easily to be met with, and being a garden insect more exposed to observation than many others, I proceed to give a description of the mode of operating of the larva, which has been drawn up by Mr. Shield. "The larva, immediately on its exclusion from the egg, begins at once and the same time to feed and to construct its case; for this purpose it commences to gnaw at the side of the midrib so as to effect an entrance between the skins of the leaf, having done which it proceeds to devour the inner substance of the leaf, thus clearing out a space for its body: when it has arrived at the edge of the leaf, or at the point which it intends should be the top of its case, it turns round and retraces its steps, cutting off in its progress the mined portion of the leaf, and joining the edges together and at the same time slightly curving the skins so as to afford it a more spacious habitation; having arrived at the spot where it originally entered the leaf, its case is perfectly detached, and it either mounts on to the leaf or descends by its silken thread to another. When its case has become too small for it, it attaches itself to the side of the midrib of some leaf and proceeds to operate as in the previous instance, leaving the old case attached to the leaf and walking away with the new one." It takes the precaution to make its new case

much larger than it appears to have any occasion for, which is to allow for the growth of the larva; a new-made case is extremely transparent, but the larva soon sets to work to line it with silk, being aware that it would stand small chance of escaping the numerous and ubiquitous *Ichneumons* if it lived in a glass house.

37. **viminetella** (v. Heyden), Zell. L. E. iv. 393. Anm. i. (1849); Sta.—*lusciniapennella*, Treit.? Dup.? Alis anticis *angustulis* ochreogriseis, apicem versus paullulum saturatoribus; antennis albis, fusco-annulatis, articulo basali grisco-ochreo, non penicillato. Exp. al. 6 lin.

Head, face, and palpi greyish-ochreous. Antennæ white, annulated with fuscous; the basal joint greyish-ochreous, not tufted. Anterior wings *rather narrow* (very variable in colour), generally greyish-ochreous, slightly darker towards the apex. Posterior wings grey, with paler cilia.

Not uncommon among salallows and osiers in June and July. The larva feeds in autumn and spring on the leaves of those plants; its case is very peculiar, being made of pieces of leaf added at different times; it is not uniform in colour or size, being generally darkest towards the top, and of course broadest towards the bottom. The perfect insect can sometimes hardly be distinguished from the allied species; a fact which ought to make us extremely cautious in concluding that because we can see no distinction between species, they are therefore identical; not till the entire habits and history of the different specimens are known can we pronounce decidedly that they are not distinct.

38. **olivaceella**, n. sp. Alis anticis *olivaceo*-griseis, dorsum versus saturatoribus; antennis albis fusco-annulatis, articulo basali graciliore *olivaceo*-grisco, non penicillato. Exp. al. 6 lin.

Head, face, and palpi olive-grey. Antennæ white, annulated with fuscous; the annulations hardly perceptible before the apex; the basal joint rather slender, olive-grey, not tufted. Anterior wings *olive*-grey, inclining to dark grey along the inner margin; cilia pale olive-grey. Posterior wings *dark* grey, with paler cilia.

Two specimens taken by Mr. Allis, of which one is in my own collection.

39. **solitariella**, Zell. L. E. iv. 397 (1849); Sta.; Dougl. Ent. Trans. ii. n. s. 81. pl. xi. f. 3. Alis anticis *angustulis*, *ochreo-flavis*, *nitidis*; *ciliis* apicis ochreo-flavis, *anguli analis saturate griseis*; antennis niveis, nigro-annulatis, articulo basali ochreo-flavo non penicillato. Exp. al. 5½ lin.

Head, face, and palpi ochreous-yellow. Antennæ snowy-white, annulated with black; the basal joint ochreous-yellow, not tufted. Anterior wings *rather narrow, shining, ochreous-yellow*; the cilia at the

apex of the same colour, *at the anal angle dark grey*. Posterior wings dark grey, with paler cilia.

Not rare among *Stellaria holostea*; appears in July, but seldom met with in the perfect state; the larva feeds on the leaves of the *Stellaria holostea*, from November to June, in a whitish cylindrical case, with a darker patch on the back.

40. **lutipennella**, Zell. Isis, 1838, p. 713; Dup.?—*lutarea*, Sta.; Haw.? Step.?—*ochroleucella*, Step.? Alis anticis ochreo-flavis, *grosse squanatis*; ciliis apicis ochreo-flavis, *anguli analis dilutioribus*; antennis albidis, nigro-annulatis, articulo basali ochreo-flavo, non penicillato. Exp. al. 6 lin.

Head, face, and palpi ochreous-yellow. Antennæ whitish, annulated with dark fuscous or black; the basal joint pale ochreous-yellow, not tufted. Anterior wings *coarsely scaled, ochreous-yellow*; cilia at the apex ochreous-yellow, *paler at the anal angle*. Posterior wings *pale grey*, with ochreous-grey cilia.

Common among oaks in June and July. The larva feeds in May on the leaves of the oak (and also on the birch), in a straight, nearly cylindrical, yellowish-brown case.

41. **badiipennella** (F. v. R.), Zell. L. E. iv. 401 (1849); Sta. Alis anticis *saturate ochreo-griseis*, *costa anguste albida*, postice ochrea; antennis albis fusco-annulatis, articulo basali robusto ochreo-griseo, non penicillato. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi pale greyish-ochreous. Antennæ white, annulated with fuscous; the rather short basal joint greyish-ochreous, not tufted. Anterior wings *dark greyish-ochreous*, *the costa narrowly whitish* to near the apex, where it runs into the ochreous cilia; cilia of the hinder margin grey. Posterior wings pale grey, with paler cilia.

Not uncommon among elms and ash-trees in June and July. The larva-case is rather short, cylindrical, dark brown, with the mouth turned round nearly at right angles. Mr. Preston once found one of the larvæ feeding on an ash-leaf early in May.

## FAMILY X. ELACHISTIDÆ.

*Capilli lævigati*. Palpi labiales tænuæ, filiformes, acuminati. Alæ anteriores oblongæ, vel elongatæ; posteriores lanceolatæ vel linear-lanceolatæ.

*Head smooth* (at least as the rule, *Bedellia* and *Tischeria* are exceptions). Labial palpi slender, filiform, mostly recurved and pointed. Anterior wings oblong or elongate; *the posterior wings lanceolate or linear-lanceolate*.



The position of the perfect insects in repose is also rather characteristic, for in most of the genera they sit closely appressed to the surface on which they rest.

The individuals of many of the species in this family are extremely numerous, making up for their small size by their greater numbers; some are rather gaily coloured, but the greater proportion are variously shaded with grey or black, varied with white or whitish; in a few the markings are metallic. The perfect insects mostly fly at dusk, some may be met with flying in little swarms in the afternoon; a few are of retired habits and rarely seen on the wing. The larvæ are most frequently leaf-miners, some few are however external feeders. They have sixteen feet, though in *Tischeria* the development both of the legs and prolegs is *very slight*. The pupa is sometimes enclosed in a firm cocoon, sometimes in one of open network, but not unfrequently the pupa is naked, affixed by the caudal extremity, with a belt of silk round the middle, like some of the RHOPALOCERA; and in *Bedellia* the similarity is still more striking, the pupa being angulated, and like that of a *Pieris* in miniature.

The genera of this family represented here are fourteen in number, and may be tabulated in the following way:—

- a*. Posterior wings extremely narrow, almost setiform.
  - b*. Head rough. 1. BEDELLIA.
  - b b*. Head smooth.
    - c*. Antennæ with long slender hairs. 2. STATIMOPODA.
    - c c*. Antennæ naked.
      - d*. Basal joint of the antennæ long. 3. COSMOPTERYX.
      - d d*. Basal joint of the antennæ short. 4. BATRACHIEDRA.
- a a*. Posterior wings lanceolate or linear-lanceolate.
  - e*. Head rough in front. 5. OINOPHILA.
  - e e*. Head smooth.
    - f*. Anterior wings with projecting tufts of scales from the inner margin. 6. CHAULIODUS.
    - f f*. Anterior wings with no projecting tufts from the inner margin.
      - g*. Anterior wings with raised tufts on the disc.
        - h*. The tufts not metallic. 7. LAVERNA.
        - h h*. The tufts metallic. 8. CHRYSOCLISTA.
      - g g*. Anterior wings smooth, not retuse below the apex, nor posteriorly appearing from the cilia broader.
        - i*. Labial palpi short and thick. 9. HELIODINES.
        - i i*. Labial palpi slender, of moderate length.
          - k*. Antennæ rather thick. 10. ANYBIA.
          - k k*. Antennæ slender. 11. ASYCHNA.
  - g g g*. Anterior wings smooth, the costa slightly retuse. 12. CHRYSOCORYS.

*g g g g.* Anterior wings smooth, posteriorly appearing from the cilia broader. 13. *ELACHISTA*.  
*e e e.* Head rough behind. 14. *TISCHERIA*.

Genus I. **BEDELLIA.**

**BEDELLIA**, Sta. Cat. p. 23 (1849).

*Capilli superne ac in fronte hirsuti*, epistomio lævigato. Ocelli nulli. Palpi labiales breviusculi, subporrecti, acuminati. Haustellum nudum. Antennæ alas anteriores longitudine æquantes, tenues, articulo basali elongato, crassiusculo. Alæ longe ciliatæ, anteriores angustæ, *posteriores angustissimæ*; anteriores: cellula discoidalis acuminata, venas duas in costam, venam apicalem furcatam (cujus ramus inferior trifidus), venam unicam in marginem posticum mittit; subdorsalis apex obsoletus; posteriores: venæ subcostalis et subdorsalis distinctæ, reliquæ obsoletæ.

*Head above and in front hairy*; the face smooth. Ocelli none. Labial palpi rather short, almost porrected, pointed. Tongue naked. Antennæ as long as the anterior wings, slender, the basal joint elongate and rather thickened. Wings with long cilia, the anterior narrow, *the posterior extremely narrow*. In the anterior wings the acuminate discoidal cell emits two veins to the costa, a furcate apical vein (of which the lower branch is trifid) and a single vein into the hinder margin; the apex of the subdorsal vein is obsolete. In the posterior wings the subcostal and subdorsal veins are distinct, the remainder are obsolete.

Only one species is known in this genus, which, though of recent discovery, is already ascertained to occur in Sicily, in Austria, and in the south of England. The perfect insect reposes with its fore legs drawn in beneath it, and its head but slightly elevated from the surface on which it rests. There are two broods in the year, one in August and the other in October; the latter brood probably hybernates, as Professor Zeller met with the insect in the spring. The larva is extremely beautiful, and in motion reminds one of a half-looper *Noctuina* larva; it mines in the leaves of *Convolvulus arvensis* (sometimes, but very rarely, in *C. Sepium*), frequenting only those plants which grow completely in the shelter of hedges; it makes large whity-brown blotches in the leaves, and is extremely careful to make its excrement outside its mine, for this purpose retreating to the opening in the leaf, and exerting its anal extremity. The naked angulated pupa is suspended at the junction of two or three cross silken threads, or suspended by threads fastened to the two extremities.

1. **somnulentella**, Zell. Isis, 1847. p. 894; Dougl. Ent. Trans.

ii. n. s. 208. pl. xvii. f. 1.—*Orpheella*, Sta. Alis anticis obscure ochreis, fusco-irroratis, dorso dilutiore. Exp. al.  $4\frac{1}{2}$  lin.

Head greyish-ochreous. Face dark fuscous. Palpi fuscous, terminal joint dirty ochreous. Antennæ dark fuscous. Anterior wings dirty ochreous, coarsely irrorated with fuscous, palest along the inner margin; cilia pale grey. Posterior wings grey, with paler cilia.

Appears in August and October among *Convolvulus arvensis*, but so retired in habit that it is rarely seen. The larva mines the leaves of the *C. arvensis* in the beginning of August and middle of September; sometimes it is very plentiful.

## Genus II. STATHMOPODA.

STATHMOPODA, Zell. (in litt.) *Cosmopteryx* p., Hüb.; Zell. Isis, 1839; Dup. Cat. *Elachista* p., Dup. L. F. xi.

Capilli kevigati, frons obtusa. Antennæ corporis longitudine, setaceæ, articulis elongatis, ♂ *tenerrime longe pilosæ*. Palpi labiales longiusculi, læves, tenues, recurvi, acuti, articulo secundo compresso. Haustellum breve, squamatum. Tibiæ posticæ *pilis incrassatæ*, longe spinosæ. Alæ longissime ciliatæ, anteriores angustæ, posteriores angustissimæ; anteriores: cellula discoidalis elongata, postice non clausa; rami quatuor postremini basi libera; venæ medianæ rami tres elongati; submedianæ postice *incrassatæ*; subdorsalis simplex; posteriores: vena costalis (?) furcata, ramo altero in costam, altero in marginem posticum exeunte; medianæ ramos quatuor in marginem posticum emittit.

Head smooth, the forehead obtuse. Antennæ as long as the body, setaceous, with elongate joints, in the ♂ *with very delicate long hairs*. Labial palpi rather long, smooth, slender, recurved, acute, the second joint compressed. Tongue short, clothed with scales. The hinder tibiæ *thickened with hairs*, with long spines. Wings with very long cilia, the anterior narrow, the posterior extremely narrow. In the anterior wings the elongate discoidal cell is not closed posteriorly; the four last branches have the base free; three elongate branches proceed from the median vein; the submedian vein is posteriorly *thickened*; the subdorsal vein is simple. In the posterior wings the costal (?) vein is furcate, one branch running into the costa, and the other into the hinder margin; the median vein emits four branches to the hinder margin.

Only one species is at present known in this genus; it has long been known abroad (though in this country very rare), yet its preparatory states still are unascertained; the Linnean assertion, "*Habitat in Alni foliis subcutanea*," not having been confirmed, *may be* entirely erroneous, like the "*Habitat in Fagi foliis*

subcutanea," given for *Schefferella*, and may therefore only put us on the wrong scent. The perfect insect in repose extends its hind legs (according to the observations of Linnæus and Zeller) in a horizontal direction.

1. **pedella**, Lin. F. S. 1433 (1761).—*cylindrella*, Fab.—*cylindricus*, Panz. I. G. 24.—*angustipennella*, Hüb.; Treit.; Dup. L. F. xi. pl. 309. f. 10. Alis anticis dilute luteis, costa fusca, maculis tribus dorsi fuscis prima basali, secunda ante, tertia pone medium, secunda tertiaque costam versus linea fusca conjunctis. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head, face, and palpi pale yellow. Antennæ pale fuscous. Anterior wings pale yellow, with the costa fuscous, and three fuscous spots on the inner margin; the first at the base, the second before the middle, and the third beyond the middle; the second and third are united towards the costa by a slender fuscous streak; in the apex is a small fuscous spot; cilia fuscous. Posterior wings fuscous, with paler cilia.

Appears in July, frequenting alders. A specimen taken near Brandon, by Mr. Dunning, is in his collection.

### Genus III. COSMOPTERYX.

*Cosmopteryx* p., Hüb. v. 424 (1816); Zell.; Dup. *Gracillaria* p., Haw. *Glyphipteryx* p., Step.

Capilli lævigati, frons valde *convexa*. Antennæ corporis longitudine, setacæ, articulo basali valde *longo*, clavato, reliquis valde confertis, crassiusculæ, nudæ. Palpi labiales longiusculi, tenues, recurvi, articuli secundi apice incrassato. Haustellum mediocre, squamatum. Tibiæ posticæ parum incrassatæ, fasciculatæ, spinis mediocribus crassiusculis. Alæ longissime ciliatæ, anteriores angustæ, posteriores setacæ; anteriores: cellula discoidalis elongata, postice non clausa; rami apicales tenues, basi libera; venæ medianæ rami tres clongati; submediana *simplex*, juxta subdorsalem *furcatam*; posteriores: venæ ramique plane *obsoleti*.

Head smooth; the forehead extremely *convex*. Antennæ as long as the body, setaceous, with the basal joint *very long* and clavate, the remainder very thickly set together, rather thick, without hairs. Labial palpi rather long, slender, recurved, the apex of the second joint thickened. Tongue moderate, clothed with scales. The hinder tibiæ slightly thickened, tufted, with moderately long, rather thick spines. Wings with very long cilia, the anterior narrow, the posterior setaceous. In the anterior wings the clongate discoidal cell is posteriorly not closed; the slender apical veins have the base free; from the median vein three clongate branches proceed; the *simple* submedian vein

is close to the *furcate* subdorsal vein. In the posterior wings the veins and branches are *obsolete*.

Three species of surpassing beauty constitute this genus, but one of them has not yet been found in Britain. The larvæ of none are *known*; but the larva of *Drurella* is pretty strongly *suspected*: it mines in the leaves of the hop in September, when full fed quitting the leaf and forming a fine white cocoon, within which the larva remains unchanged during the winter, hence the perfect insect is difficult to rear. Mr. Douglas had collected a number of these larvæ in the autumn of 1852, but many escaped from his breeding cage, and the remainder died; in the following July he found a specimen of the perfect insect on the window of the room where he had kept his larvæ; subsequently Mr. Wing discovered some of the perfect insect (not previously known to occur in this locality) by beating the hop-plant, the leaves of which had furnished the mining larvæ the previous autumn. I therefore *conclude* that these miners are the larvæ of *Drurella*, but that they are so is not yet proved.

1. **Drurella**, Fab. S. E. 666. 64 (1775).—*Druryella*, Zell. Ent. Ztg. 1850.—*Zieglerella*, Hüb. Tin. 306; Evers.—*eximia*, Haw.; Step. Alis anticis *atris*, *fascia obliqua argentea prope basim*, fascia recta in medio, fasciæque posteriore obliqua violaceo-argenteis, spatium triangulare saturate aurantium includentibus, strigulis duabus argenteis, altera supra angulum analem, altera in ipso apice. Exp. al. 4 lin.

Head dark fuscous, metallic. Face and palpi rather silvery. Antennæ black, with a ring before the apex, and the apex white. Anterior wings *black*, with an *oblique silvery fascia near the base* (nearest the base on the costa), a nearly straight fascia in the middle, and an oblique fascia beyond the middle silvery-violet (this last fascia is nearest the base on the inner margin); the triangular space included between these two fasciæ is deep orange, margined with black; above the anal angle is a short silvery streak, and another is in the extreme apex of the blackish cilia. Posterior wings blackish, with paler cilia.

Truly, as Haworth says, "species formosissima;" it has occurred in some plenty in several localities near London in July; it was reputed to frequent a willow-tree at Hackney, probably because some hops grew in the vicinity.

2. **Lienigiella**, Zell. Isis, 1846. p. 298; Sta. Alis anticis *saturate ochreis*, strigulis tribus tenuibus ex basi albo-argenteis, prima costali mox deflexa et ante medium desinente, secunda supra plicam, tertiaque dorsali in medio desinentibus, macula in medio costæ albida, punctis quinque plumbeo-argenteis pone medium in circulo positiss, pone hæc strigula argenteo-alba in apice extremo decurrente. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head dark ochreous, a pale line on each side behind the eyes. Face whitish. Palpi whitish, terminal joint pale fuscous. Antennæ dark fuscous. Anterior wings *dark ochreous*, with three slender silvery white streaks from the base, one along the costa, which is soon deflected, and ceases before the middle of the wing, another runs above the fold, and the third along the inner margin to the middle; in the middle of the costa is a whitish spot, not sharply defined; beyond the middle of the wing are five small leaden-silvery spots placed almost in a circle; beyond them a silvery white streak runs at the apex of the wing through the cilia, separated from the whitish costal cilia by a narrow fuscous streak; cilia of the inner margin pale grey. Posterior wings grey, with paler cilia.

This species, which to my notions is even more elegant than the preceding, occurs in the Cambridgeshire fens in June and July.

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#### Genus IV. **BATRACHEDRA.**

*Gracillaria* p., Haw.; Step. *Ornix* p., Treit. *Cosmopteryx* p., Zell.

Capilli lævigati; frons angustula, obtusa. Antennæ corporis longitudine, setaceæ, articulo basali *brevi*, reliquis confertis, *nudæ*. Palpi labiales mediocres, recurvi, acuti, articulo secundo compresso, subclavato. Haustellum mediocre, squamatum. Tibiæ posticæ parum incrassatæ. Alæ longe ciliatæ, anteriores angustæ, posteriores angustissimæ, *fasciculo costæ prope basin*; anteriores: cellula discoidalis valde elongata vix clausa; rami apicales attenuati, subobsoleti; medianæ ramus primus *brevissimus, obliquus*; submediana simplex; subdorsalis simplex, furca basin versus indicata; posteriores: vena mediana tantum postice distinctior, *ramis nullis*.

Head smooth; the forehead rather narrow, obtuse. Antennæ as long as the body, setaceous, the basal joint *short*, the remainder thickly set together, *without hairs*. Labial palpi moderately long, recurved, acute, the second joint compressed, subclavate. Tongue of moderate length, clothed with scales. The hinder tibiæ slightly thickened. Wings with long cilia, the anterior narrow, the posterior extremely narrow, *with a tuft projecting from the costa near the base*. In the anterior wings the extremely elongate discoidal cell is hardly closed posteriorly; the attenuated apical veins are almost obsolete; the first branch of the median vein is *very short and oblique*; the submedian vein is simple; the subdorsal vein is simple, but there are indications of a fork towards the base. In the posterior wings the median vein is only more distinct posteriorly, *with no branches*.

Only two species are at present known in this genus: one, *præ-angusta*, is very common among willows and poplars in July, and

may frequently be observed sitting on the trunks of those trees with the anterior feet put back, like *Bedellia*, not forwards like *Gracilaria*, and the head a little raised; the larva has been observed by Lienig, who records it as feeding between united aspen-leaves. Of the larva of *pinicolella* we have no record, in spite of Duponchel's amusing remarks (Cat. 374), "that Fischer de Röslerstamm had written him word that the larva of *pinicolella* lived in the catkins of the *poplar*, but that it appeared, from a case placed in his collection, beside that of *pinicolella*, these larvæ lived in moveable cases like those of the genus *Colcophora*."

1. **præangusta**, Haw. L. B. 530 (1829); Step.—*turdipennella*, Treit.; Dup. L. F. xi. pl. 310. f. 7; Zell.; Lienig. Alis anticis exalbidis, fusco-variegatis, basi juxta costam pallida, lineolis duabus nigris ossco-cinctis, priore plicæ ante medium, altera disci pone medium. Exp. al. 7 lin.

Head and face dirty-whitish. Palpi dirty-whitish, the last joint with two dark fuscous rings. Antennæ fuscous annulated with whitish. Anterior wings dirty-whitish, varied with fuscous, only the basal portion of the wing towards the costa remaining of the pale ground-colour; on the fold before the middle is a short black line surrounded by the pale ground-colour, and a similar ocellated mark lies midway between this and the apex of the wing; cilia grey. Posterior wings grey, with paler cilia.

Common in July on the stems of willows and poplars; the larva (according to Lienig) in May between united poplar leaves.

2. **pinicolella** (Zell.), Dup. L. F. xi. 579. pl. 310. f. 13 (1838); Zell.; Sta. Alis anticis ochreis, squamis sparsis fuscis, costa fusca præcipue apicem versus, puncto prope angulum analem fusco. Exp. al. 5-6 lin.

Head pale ochreous, tinged with bronze. Face whitish. Palpi whitish, terminal joint fuscous. Antennæ pale fuscous, with darker annulations. Anterior wings ochreous, with scattered fuscous scales; the costa dark fuscous, especially towards the apex; near the anal angle is a small fuscous spot; cilia dark fuscous. Posterior wings pale grey, with paler cilia.

Among fir-trees in June and July; has occurred at West Wickham, at Dartford Heath, and at Weybridge.

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#### Genus V. **OINOPHILA.**

OINOPHILA, Step. Ent. Trans. V. proc. xli. (1848). *Gracilaria* p., Haw.; Step.

Capilli in fronte hirsuti, superne lævigati, epistomio lævigato. Ocelli

nulli. Palpi labiales *breviusculi*, subporrecti, articulo secundo *selis paucis* instructo, articulo tertio subacuto. Haustellum breve. Antennæ alas anteriores longitudine fere æquantes, tenues. Tibiæ posticæ valde pilosæ. Alæ longæ ciliatæ, anteriores angustæ, *subcaudatæ*, posteriores lanceolatæ. Anteriores: vena subcostalis basim versus obsoleta, cellula discoidalis imperfecte clausa, venas quatuor in costam mittit, unam in marginem posticum, subdorsalis simplex; posteriores: venæ subcostalis et subdorsalis basim versus indicatæ, rami obsoleti.

Head *hairy in front*; the top of the head and the face smooth. Ocelli none. Labial palpi *rather short*, slightly porrected; the second joint provided *with a few bristles*; the terminal joint almost acute. Tongue short. Antennæ slender, nearly as long as the anterior wings. Hinder tibiæ very hairy. Wings with long cilia, the anterior narrow, *subcaudate*, the posterior lanceolate. In the anterior wings the subcostal vein is obsolete towards the base, the imperfectly closed discoidal cell sends four veins to the costa, one to the hinder margin; the subdorsal vein is simple; in the posterior wings there are indications of the subcostal and subdorsal veins towards the base, but their branches are obsolete.

Only one species of this genus is known; it inhabits wine-vaults and wine-cellars. The larva has been reputed to feed on the fungus which grows in wine-vaults, and also on the corks in the bottles; but further investigations are still wanted fully to elucidate the natural history of this singular insect.

1. **V-flava**, Haw. L. B. 530 (1829); Step. Alis anticis fuscis, fascia angulata in medio, angulo ipso apicem versus producto, maculis posticis oppositis sæpe in fasciam conjunctis, flavidis. Exp. al. 4-5 lin.

Head fuscous; the frontal tuft dirty-ochreous. Face and palpi whitish. Antennæ fuscous. Anterior wings fuscous, with an angulated yellow fascia in the middle, the angulation being towards the apex of the wing and somewhat produced; on the costa towards the apex is a yellow spot, and a smaller one on the inner margin rather anterior is sometimes united to it, forming a fascia; cilia grey, with some yellow scales immediately below the apex of the wing. Posterior wings pale grey, with yellowish-grey cilia.

Occurs in wine-vaults and wine-cellars in July and August.

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#### Genus VI. **CHAULIODUS.**

**CHAULIODUS**, Treit. E. S. ix. 2. 31 (1833); Dup. *Lophonotus*, Step. *Elachista* p., Zell. *Epermentia*, *Calotripis* p., et *Trichotripis* p., Hüb.

Capilli læves, frons obtusa. Antennæ abdomine longiores, setaceæ, articulis breviusculis (basali brevi) *confertis*, *breviter pilosæ*. Palpi



labiales mediocres, crassiusculi, recurvi, articulo secundo subclavato, terminali multo brevioribus, subacuto. Haustellum breve, nudum. Alæ longe ciliatæ, anteriores elongatæ, *in dorso squamato-dentatæ*, posteriores lanceolatæ; anteriores: cellula secundaria *indicata*; vena apicalis furcata supra et infra apicem exit, infra eam rami quinque; submediana simplex; vena subdorsalis brevis, furca subobsoleta; posteriores: cellula costalis valde angustata: cellula mediana clausa in costam unicam, in marginem posticum quinque venas emittit, inter se non connexas.

Head smooth; the forehead obtuse. Antennæ longer than the abdomen, setaceous, with rather short, *closely set joints* (the basal joint short), *with short hairs*. Labial palpi of moderate length, rather thick, recurved; the second joint subclavate; the terminal joint much shorter, rather acute. Tongue short and naked. Wings with long cilia, the anterior elongate, *with tooth-like projections of scales on the inner margin*, the posterior lanceolate. In the anterior wings the secondary cell is *indicated*; the furcate apical vein terminates above and below the apex, below it are five veins; the submedian vein is simple; the subdorsal short, with a rather obsolete fork; in the posterior wings the costal cell is extremely narrow, the closed median cell emits one vein to the costa and five separate veins to the hinder margin.

Of this genus we have three species; several others are known to occur on the continent. (One of our species, *insecurellus*, shows a slight discrepancy in the venation of the wings; the apical vein of the anterior wings being *simple*, and below it are *six* veins; the apex of the submedian is also *thickened*.) Little is known of the habits of any of the species except *Charophylltellus*; this is double-brooded, the larva feeding at the end of June and beginning of July, and in September, on several species of *Umbelliferae*; they generally occur in companies of rarely less than ten on a plant, sometimes as many as fifty; when very young the larvæ mine the leaves, but when more fully grown they come from within the cuticles, and devour the lower half of the leaf, the upper portion consequently becomes discoloured and turns brown. The larvæ spin a number of small threads about the plant on which they feed, and these threads are covered with a glutinous secretion which collects in minute globules, reminding one, as De Geer expressed it, of a spider's web in a fog. When the larva is full-fed it spins an open network cocoon and changes therein to a pupa. The perfect insect appears towards the end of July and beginning of August, and in October; the latter brood is far the most numerous, but the specimens are more retired in habit, and are rarely met with till the spring, after hibernation, and of course in wasted condition. The perfect insects of the summer brood may sometimes be met with flying on calm evenings, with

a rather wavy flight. Of the other species of the genus we are not aware of more than one brood, though by analogy a hibernating autumnal brood is extremely probable. The larva of *Illigerellus* (according to Fischer's observations in Treitschke) differs considerably in habit, feeding *singly* on *Ægopodium Podagraria* between *several leaves drawn together*.

1. **insecurellus**, Sta. Cat. p. 24 (1849).—*Illigerellus*, Sta. Zool. 1848. Alis anticis *obscure albidis*, postice fusco et ustulato suffusis *fascia in medio ustulata, prope costam fusca*, maculis duabus dorsi, una disci, una costæ albidis, macula disci puncto nigro applicata, fasciculis tribus nigro-squamatis e dorso prominulis. Exp. al.  $4\frac{1}{2}$  lin.

Head and face dirty-grey. Palpi grey. Antennæ fuscous. Anterior wings *dirty-whitish, with a tawny fascia in the middle, darkest on the costa*; beyond which the wing is much suffused with tawny and fuscous, leaving only two spots on the inner margin, one on the disc and one on the costa of the whitish ground-colour; immediately below the spot on the disc is a black dot; the basal portion of the wing is much suffused with grey, and two or three darker spots are sometimes conspicuous; three tufts of black scales project from the inner margin; cilia greyish-tawny. Posterior wings grey, with paler cilia.

Has occurred sparingly on the downs beyond Croydon (at Stoa's-nest), at the end of July and beginning of August.

2. **Illigerellus**, Hüb. Tin. 333 (1816); Treit.; Dup. L. F. xi. pl. 294. f. 1.—*falciformis*, Haw.; Step.; Curt. Alis anticis *dilute ochreis*, fusco irregulariter variegatis, striga obliqua prope basin a dorso fere ad costam, *striga fasciiformi ante medium ante costam curvata et ramulum in angulum analem emittente*, apicque fuscis, punctis duobus nigris in disco, fasciculis duobus nigro-squamatis e dorso prominulis. Exp. al. 6 lin.

Head and face ochreous. Palpi ochreous; the third joint with a broad fuscous ring. Antennæ greyish-fuscous. Anterior wings *pale ochreous*, irregularly varied with fuscous; a dark streak extends obliquely from the inner margin near the base more than half across towards the costa; *before the middle is a fuscous fasciiform streak curved and expanded on the costa, and emitting a branch to the anal angle*; there is also a fuscous blotch on the apex of the wing; on the disc are two black spots, one before, the other beyond the middle; from the inner margin project two tufts of black scales; cilia fuscous, varied with ochreous, and having a decidedly falcate appearance. Posterior wings fuscous, with paler cilia.

Appears in July; the larva feeding (according to Fischer) on *Ægopodium Podagraria* in May. Has occurred in several localities near Hastings, Brighton, in the Cambridgeshire fens, etc.

3. **Chærophyllellus**, Goëze, E. B. iii. 4. 169. 292 (1783).—*testaceella*, Hüb.; Zell.; Dup.—*fasciculellus*, Step. pl. 39. f. 1. Alis an-

ticis saturate fuscis, ochreo-variegatis, squamis sparsis albis, macula prope costam ante apicem albida (vel alis anticis usque ad medium albidis, fascia lata fusca pone medium, macula costæ ante apicem albida), fasciculis tribus ustulatis seu fuscis e dorso prominulis. Exp. al. 6 lin.

Head and face dark grey. Palpi grey; the end of the third joint ochreous. Antennæ dark fuscous. Anterior wings dark fuscous, varied with ochreous, with scattered white scales; near the costa before the apex is a conspicuous whitish spot (or anterior wings with the basal half entirely whitish or dirty-yellowish, beyond which is a broad fuscous fascia, followed by tawny towards the costa, the white spot before the apex occurring as in the dark variety); from the inner margin project three tufts of tawny or fuscous scales; cilia dark fuscous, with a light spot below the apex. Posterior wings grey, with paler cilia.

Appears in July and August, and October, hybernated specimens occurring in spring; it frequents *Umbellifere* among hedges. The larva feeds at the end of June and beginning of September on various *Umbellifere*; I have found it on *Anthriscus sylvestris*, *Torilis Anthriscus*, *Sison Amomum*, *Heracleum Sphondylium*, and *Angelica sylvestris*.

## Genus VII. LAVERNA.

*Laverna* p., Curt. B. E. fo. 735 (1839). *Elachista* p., Zell.; Dup.

Capilli læves, frons obtusa. Antennæ abdomine longiores, setacæ, articulo basali elongato, clavato, crassiusculæ. Palpi labiales mediores, recurvi, articulo secundo apicem versus laxè squamato, subclavato, tertio breviorè acuto. Haustellum mediocre, parè squamatum. Alæ longissimè ciliatæ, anteriores *tuberculato-squamatæ*, *tuberculis non metallicis*, dorso non dentato; posteriores lineari-lanceolatæ.

Head smooth; the forehead obtuse. Antennæ longer than the abdomen, setaceous, rather thick, with the basal joint elongate, clavate. Labial palpi moderately long, recurved; the second joint subclavate, towards the apex loosely scaled; the third joint shorter, acute. Tongue of moderate length, sparingly scaled. Wings with very long cilia, the anterior *with tufts of scales, the tufts not metallic*, the inner margin without projecting tufts; the posterior wings linear-lanceolate.

The limits of this and several of the following genera are by no means satisfactorily settled. The present genus admits of being readily divided into three groups.

- A. Anterior wings with a distinct pale costal spot; the furcate apical vein runs into the costa before the apex; below it *five* veins proceed to the hinder margin; the subdorsal vein *furcate at each end*, the basal fork long, the apical fork shorter. This singular appearance no doubt arises from the thickened apex of the submedian vein be-

coming confluent with the subdorsal. In the posterior wings five veins proceed from the discoidal cell to the hinder margin, one to the costa. Species 1-4.

(In species 4, *Stephensi*, the second joint of the palpi can scarcely be called loosely scaled.)

- B. The pale costal spot of the anterior wings obsolete; the tufts of scales extremely small; the apex of the subdorsal vein *simple*, the thickened apex of the submedian not connected with it. Species 5-9.

(In species 6, *ochraceella*, the apex of the subdorsal vein is *furcate*, as in section A. I place species 7, *Phragmitella*, here, though I had previously made a distinct genus of it, *Limnæcia*: it accords well with *ochraceella*, only exaggerating the peculiarities from its larger size.)

- C. The anterior wings with no pale costal spot; below the *furcate* apical vein *three* veins run into the hinder margin; the subdorsal vein *only furcate at the base*; the submedian *not thickened*. Sp. 10, 11.

Many of the species of this genus are very beautiful, the anterior wings being frequently of varied colours, and the tufts on them give them, when seen at rest, a singular appearance; the perfect insects are rather sluggish, and some are consequently rarely met with; some which only appear towards the end of the summer, such as *Epilobiella*, are more frequently met with in the spring after hibernation. Most of the species have probably only one brood, but *Staintoni* is double-brooded. The few known larvæ are either leaf-miners, or feed in the terminal shoots of plants.

1. **propinquella**, Sta. Sup. Cat. p. 8 (1851): *Alis anticis cæruleo-fuscis, ochraceo marmoratis, macula dorsi basali fere costam tangente, fasciaque obliqua postica interrupta albis, maculis tuberculatis nigris, tribus plicæ, tribus disci; capite cum fronte albo, palpis albis, articuli tertii annulo ante apicem fusco. Exp. al. 6 lin.*

Head and face *white*. Palpi *white*, the terminal joint with a fuscous ring before the apex. Antennæ fuscous. Anterior wings bluish-fuscous, marbled with ochreous; a large basal spot which is expanded on the inner margin and *almost touches the costa*, and an *interrupted oblique* hinder *fascia*, are *white*; a slender white streak arises in the middle of the costa, and after passing under a round black spot on the disc, runs into the white fascia, which is interrupted in its middle by a grey and a tawny spot; three tufts of black scales lie on the fold, and three others above them; cilia tawny fuscous. Posterior wings fuscous, with paler cilia.

Has occurred in various localities at Deal, Fulham, near Bristol, in the south of Scotland, and in the Cambridgeshire fens in July; but nowhere common.

2. **lacteella**, Step. H. iv. 210 (1834).—*gibbiferella*, Zell.; Lienig.

*Alis anticis cæruleo-fuscis, ochraceo-marmoratis, macula dorsi basali, maculis oppositis ante apicem dilute ochraceis, albidisve, maculis tuberculatis nigris, tribus plicæ, tribus disci; capite cum fronte dilute ochreo, palpis dilute ochreis, articuli tertii annulis duobus fuscis.* Exp. al. 5 lin.

Head and face *pale ochreous*. Palpi *pale ochreous*, the last joint with *two* fuscous rings. Antennæ fuscous. Anterior wings bluish-fuscous, tinged with ochreous towards the inner margin, with a large spot on the inner margin at the base, and *two opposite spots* towards the apex, *pale ochreous* or *whitish*; near the middle of the costa are a few whitish scales, and others are scattered over the disc and towards the apex; three tufts of black scales lie along the fold and three others above them; cilia greyish-fuscous. Posterior wings fuscous, with paler cilia.

Occurs in various localities in June and July, more commonly than the preceding; I have fancied it was attached to the sawfly.

3. **Staintoni**, Sircom, Zool. 1848. p. 2038.—*miscella*, W. V. ?; Hüb. Tin. 273 ? *Alis anticis griseis, ustulato variegatis, maculis duabus prope costam luteis, prima in medio, secunda ante apicem, maculis duabus prope dorsum tuberculatis, atris; capite griseo, fronte argenteo-grisea, palpis griseis.* Exp. al. 3–4½ lin.

Head *grey*. Face *silvery grey*. Palpi *grey*. Antennæ *grey*. Anterior wings *grey*, varied with tawny, with *two yellowish spots* towards the costa, one in the middle, the other near the apex, and with two tufts of black scales near the inner margin; cilia *grey*. Posterior wings *grey*, with paler cilia.

Common on many of the chalk downs of the south of England, among *Helianthemum vulgare* in May and June, and I believe again in August. The fat rather short larva mines the leaves of the *Helianthemum* in March and April, moving successively from leaf to leaf as it finds occasion, and quitting the leaf before changing to the pupa state. I imagine there is a second brood of the larva in July.

4. **Stephensi**, Sta. Cat. p. 24 (1849). *Alis anticis albis, maculis tribus costæ griseis, prima basali oblonga, secunda pone medium, tertia apicali, secunda tertiaque stria ustulata connexis, maculis duabus prope dorsum tuberculatis atris; capite cum fronte albo, palpis albis, articuli secundi apice, articuli tertii annulo ante apicem nigris.* Exp. al. 4 lin.

Head and face *white*. Palpi *white*; the end of the second joint, and a ring before the apex of the terminal joint, black. Antennæ fuscous, annulated with white. Anterior wings *white*, with three grey blotches along the costa, the first reaching nearly to the middle, the second lying beyond the middle, and the third in the apex; the second and third are united by a tawny streak on the disc; near the inner margin are two tufts of black scales, the first before the middle, the second

towards the anal angle; cilia grey. Posterior wings pale grey, with paler cilia.

A few specimens of this pretty species were taken by Mr. Bouchard in Hainault Forest, among old hawthorn-bushes, in August.

5. **Epilobiella**, Schr. F. B. ii. 126. 1853 (1802); Bouché; Treit.; F. v. R. pl. 73. pl. 74. f. 1.; W. V.? Dup.?—*fulvescens*, Haw.; Step.—*nebulella*, Step. Alis anticis *dilute ochreis*, *fusco-nebulosis*, præcipue sub costam et apicem versus, maculis posticis oppositis dilutioribus, maculis duabus tuberculatis fuscis, prima dorsi ante, secunda plicæ pone medium. Exp. al.  $5\frac{1}{2}$  lin.

Head and face ochreous. Palpi ochreous, the terminal joint with two fuscous rings. Antennæ fuscous. Anterior wings *pale ochreous*, *clouded with fuscous*, especially along the costa and towards the apex, with an appearance of two paler opposite spots before the apex, and with two tufts of fuscous scales, the first near the inner margin before the middle, the second in the fold beyond the middle; cilia greyish-ochreous. Posterior wings grey, with paler cilia.

Appears in August among *Epilobium hirsutum*, but more frequently met with after hybernation in May. The larva is abundant in the tops of the *Epilobium* in June and July, screwing up the unexpanded flower- and leaf-buds.

6. **ochraceella**, Curt. B. E. fo. 735 (1839).—*clandestinella*, Schr.? Alis anticis *angustulis dilute luteis*, *saturate luteo valde suffusis*. Exp. al. 7 lin.

Head, face, and palpi pale yellow. Antennæ pale yellow, with pale fuscous annulations. Anterior wings *rather narrow, pale yellow, much suffused with dark yellow*, so that the pale colour appears on the darker ground as indistinct spots, of which two are on the inner margin and one near the costa, before the middle, and two smaller ones are towards the costa beyond the middle; cilia yellowish. Posterior wings pale whitish-grey, with very pale ochreous cilia.

This beautiful insect had been taken in several localities in June, in moist places, but was considered a rarity, till last summer Mr. Charles Jordan was so fortunate as to discover the larva in May, mining the leaves of the *Epilobium hirsutum*; and on our ascertaining, from breeding a specimen, the value of the newly found larvæ, we were enabled to collect a considerable number of the pupæ, on the leaves of the *Epilobium*, in their elongate, rather firm, pale buff cocoons.

7. **Phragmitella** (Bentley), Sta. Sup. Cat. p. 4 (1851). Alis anticis *dilute ochreis*, *stria disci postica fusca*, *in qua puncta dua saturate fusca, albo-cincta*. Exp. al.  $9\frac{1}{2}$  lin.

Head, face, and palpi pale ochreous. Antennæ pale ochreous, an-

nulated with fuscous. Anterior wings pale ochreous, *with a fuscous streak on the disc posteriorly, in which are two dark fuscous spots encircled with white*, one in the middle and the other beyond the middle; cilia pale greyish-ochreous. Posterior wings pale grey, with paler cilia.

Two specimens, in rather wasted condition, have been taken in marshy places in July; one is in Mr. Shepherd's, the other in Mr. Stevens' collection.

8. **decorella**, Step. H. iv. 213 (1834). Alis anticis fuscis, *dorso late usque pone medium, fasciaque obliqua postica albis, macula majore ante, minore post fasciam ochreo-brunneis*. Exp. al.  $5\frac{1}{2}$  lin.

Head grey. Face white. Palpi white, the last joint with a ring, and the apex fuscous. Antennæ fuscous. Anterior wings fuscous, with the inner margin broadly white to beyond the middle, and with an oblique white fascia before the apex; a tawny blotch lies on the disc before the fascia, and beyond the fascia is a smaller tawny blotch; cilia grey. Posterior wings fuscous, with paler cilia.

Occurs in many localities at the end of autumn, hibernated specimens occurring in the spring; like some other hibernating species, it is not unfrequently found in houses and out-houses.

9. **subbistrigella**, Haw. L. B. 581 (1829).—*sturnipennella*, Treit.; Zell. Alis anticis fuscis, *macula obsoleta dilutior dorsi prope basin, macula triangulari albida ante medium dorsi, costam tangente, fascia postica obliqua alba subinterrupta*. Exp. al.  $5\frac{1}{2}$  lin.

Head grey. Face white. Palpi white, the last joint with a ring, and the tip fuscous. Antennæ fuscous. Anterior wings fuscous, *with an obscure paler spot on the inner margin near the base*, a large triangular whitish spot on the inner margin before the middle reaching to the costa, and beyond the middle with an oblique white fascia, almost interrupted; cilia greyish-fuscous. Posterior wings fuscous, with paler cilia.

I met with this among willows, at Chudleigh, in June; it has also occurred in other localities, but having been reputed a variety of *decorella*, its habits have been little noticed.

10. **atra**, Haw. L. B. 553 (1829); Step.; Curt.—*Hellerella*, Dup. L. F. xi. p. 293. f. 11.—*putripennella*, Zell. Alis anticis nigris, *dorso sinuate albo, fascia alba postica, ramos emittente, unum antice, duos postice, apicem nigrum in maculas tres dividentes, maculis duabus tuberculatis atris, prima plicæ in medio, altera supra angulum analem (alis anticis sæpe omnino nigris)*. Exp. al. 6 lin.

Head and face white, with a few grey scales. Palpi white, the end of the second joint, and a ring before the apex of the terminal joint, fuscous. Antennæ fuscous, with paler annulations. Anterior wings black, the inner margin white to beyond the middle, where an irregular oblique white fascia proceeds towards the apex; the black forming a blotch along the costa, very narrow at the base, but expanding towards

the middle, where it nearly reaches the inner margin (towards the inner margin it is much tinged with tawny); it is indented by a short white streak from the oblique hinder fascia; the black apical portion of the wing is divided into three nearly equal portions by two branches from the white fascia; there are two tufts of black scales, one on the fold near the middle, the other above the anal angle; cilia grey. (In some specimens the anterior wings are almost entirely suffused with black, and the head, face, and palpi are also darker.) Posterior wings grey, with paler cilia.

Not scarce in June among white-thorn; the dark variety appears exclusively attached to the apple, it is possible it may be a distinct species.

11. **Rhamniella**, Zell. Isis, 1839. p. 211.—*lophyrella*, Dougl. Zool. 1846. p. 1270. f. 9. Alis anticis fuscis, ochreo-variegatis, maculis quatuor tuberculatis nigris, prima plicæ prope basim, secunda costæ ante medium, tertia dorsi medii, quarta supra angulum analem. Exp. al.  $5\frac{1}{2}$  lin.

Head and face grey. Palpi grey, terminal joint fuscous. Antennæ fuscous, annulated with whitish. Anterior wings fuscous, mixed with ochreous, with four tufts of black scales, one in the fold near the base, the second on the costa before the middle, the third in the middle of the inner margin, and the fourth above the anal angle; cilia grey. Posterior wings grey, with paler cilia.

Hitherto scarce; has occurred at Sanderstead and Box Hill, among buckthorn, in July.

## Genus VIII. **CHRYSOCLISTA.**

*Ecophora* p., Lat. G. C. and I. iv. 222. 1804. *Glyphipteryx* p., Curt.; Step. *Tinea* p., Haw. *Elachista* p., Zell.; Dup.

Capilli lævigati, frons obtusa. Antennæ setacæ, corporis fere longitudine, articulo basali longiusculo, clavato. Palpi labiales medioeres, recurvi, graciles, articulo secundo compresso, tertio tenuiore acuto. Haustellum medioere, squamatum. Alæ longissime ciliatæ, anteriores elongatæ, *tuberculis metallicis* ornatae, posteriores lanceolatæ, angulo anali distincto; anteriores: cellula discoidalis *postice dilatata*, imperfecte clausa, cellula secundaria *indicata*; vena apicalis bifida, infra eam venæ quatuor; subdorsalis in basi anguste furcata, in apice subbifida; submediana simplex; posteriores: vena mediana trifida; vena discoidalis ramos duos in marginem posticum mittit; vena apicalis simplex.

Head smooth, the forehead obtuse. Antennæ setaceous, almost the length of the body, the basal joint rather long, clavate. Labial palpi of moderate length, recurved, slender, the second joint compressed,



the terminal joint thinner, acute. Tongue of moderate length, clothed with scales. Wings with very long cilia, the anterior elongate, adorned with *metallic tufts*, the posterior lanceolate, with a distinct anal angle. In the anterior wings the discoidal cell is *posteriorly dilated*, imperfectly closed; the secondary cell is *indicated*; the apical vein is furcate, and below it are four veins; the subdorsal has a narrow fork at the base, and at its apex has rather a tendency to become furcate; the submedian is not thickened; in the posterior wings the median vein is trifid, the discoidal vein sends two branches to the hinder margin, the apical vein is simple.

The species of this genus do not exhibit an entire accordance: in *Linneella* the apex of the subdorsal vein of the anterior wings is quite simple; *Schrankella* has no anal angle to the posterior wings, and in this, as also in *flavicaput*, the apical vein of the posterior wings is connected with the discoidal. *Flavicaput* is besides *destitute of the metallic tufts* of the anterior wings.

The perfect insect of *Linneella* is rarely seen on the wing, generally resting on the trunks of lime-trees; *flavicaput* flies freely in the afternoon along hawthorn hedges. The larva of *Linneella* feeds on the inner bark of the lime during the winter and spring (as observed by Mr. Boyd and Mr. Wing last year); it has the third and fourth segments somewhat enlarged. The larva of *Schrankella*, discovered by Mr. Scott, mines the leaves of the *Epilobium alsinifolium* in May.

The species may be tabulated as follows:—

- a. Anterior wings orange and black.
- b. Posterior wings with distinct anal angle. Species 1, 2.
- b b. Posterior wings with no anal angle. Species 3.
- a a. Anterior wings entirely black. Species 4.

1. **Linneella**, Clerck, I. pl. xii. f. 8 (1759); Linn.; Fab.; Lat.; Curt. B. E. fo. 152; Step.; Dup.; F. v. R. pl. 88. f. 2.—*Linneella*, Zell. Alis anticis *saturate* aurantiis, basi, costa, dorsoque anguste, apice late nigris, punctis tribus tuberculatis argenteo-nigris, primo subdorsali ante medium, secundo in medio subcostali, tertio plica supra angulum analem. Exp. al.  $5\frac{1}{2}$  lin.

Head and face shining black. Palpi whitish, the terminal joint black. Antennae black, with white tips. Anterior wings *deep* orange, with the base, costa, and inner margin narrowly black, and the apex broadly black, thus leaving a longish elliptic patch of the ground-colour, into which a short black dash runs from the base above the fold; along the costa and at the apex are numerous silvery scales; there are three round tufts of black and silvery scales, the first near the inner margin before the middle, the second near the costa in the middle, the third in the fold towards the anal angle; cilia blackish.

Posterior wings blackish-purple, with blackish cilia. (A variety occurs with the orange of the anterior wings replaced by fuscous.)

Abundant in July and August, on the trunks of limes in St. James's Park, and in many of the suburbs of London; the larva feeds under the bark of the lime, during the winter and spring. Specimens of the fuscous variety are in Mr. Shepherd's collection.

2. **bimaculella**, Haw. L. B. 575 (1829); Step.; Sta. Alis anticis nigris, macula oblonga prope basim supra plicam, macula majore irregulari pone medium a plica ad costam fere extensa, *apice suo costam tangente*, aurantiis, macula secunda punctis duobus tuberculatis argenteo-nigris interne marginata, puncto tertio supra plicam prope angulum analem. Exp. al.  $5\frac{1}{2}$  lin.

Head and face shining black. Palpi whitish. Antennæ black, with white tips. Anterior wings black, with an oblong orange spot near the base, above the fold, and a larger irregular one beyond the middle, extending from the fold to near the costa, *its apex running into the costa*; on the margin of this spot, towards the base, are two silvery-black tufts, and a similar tuft above the fold projects into the orange blotch in the middle of its length; cilia blackish. Posterior wings blackish-purple, with blackish cilia.

Mr. Desvignes beat a specimen from a sawfly at Black Park, at the end of June; Mr. Doubleday has also a specimen taken near London.

3. **Schränkella**, Hüb. Tin. 264. 1812; Schr.?—*locupletella*, F. v. R. pl. 88. f. 3; W. V.? Alis anticis aurantiis, basi apiceque nigris, ipsa basi argentea, fascia obliqua ante medium argenteo-grisea, macula nigra dorsi medii in maculam transversalem argenteo-griseum exeunte, macula costæ mediæ argenteo-grisea, macula parva costali ante apicem albida. Exp. al.  $5\frac{1}{2}$  lin.

Head and face blackish. Palpi black. Antennæ black, with white tips. Anterior wings bright orange, with the base and apex black; the extreme base rather silvery; the black at the base extends furthest along the costa, and from it is a silvery-grey fascia, which runs obliquely into a black spot on the middle of the inner margin, and from the hinder end of this black spot a silvery-grey blotch proceeds towards the costa; on the costa about the middle is a silvery-grey spot, and a small whitish spot immediately before the black apex; cilia blackish. Posterior wings dark fuscous, with paler cilia.

Appears in July among *Epilobium alsinesolium*; occurs near Renfrew, and has been taken in Devonshire and Sussex. The larva feeds in May, mining the leaves of the *Epilobium*.

4. **flavicaput**, Haw. L. B. 536 (1839); Step.—*aurifrontella*, Hüb. Tin. 469? Alis anticis nigris, tuberculis duobus nigris, uno in medio plicæ, altero pone medium; *capite, apicibusque palporum flavis*. Exp. al. 6-7 lin.

Head and face *bright yellow*. Palpi at the base black, *the tip bright yellow*. Anterior wings black, with a tuft of black scales in the middle of the fold, and a smaller tuft on the disc beyond the middle; cilia black. Posterior wings dark grey, with paler cilia.

Common in June among hawthorn.

### Genus IX. **HELIODINES.**

HELIODINES, n. g. *Chrysoesthia* p., Hüb. *Ecophora* p., Treit.; Dup. *Elachista* p., Zell.

Capilli lævigati, frons obtusa. Antennæ setaceæ, corporis fere longitudine, articulo basali *brevi*, clavato. Palpi labiales *parvi*, *crassiusculi*, acuminati. Haustellum mediocre. *Abdomen crassiusculum, breve*. Alæ longissime ciliatæ, anteriores elongatæ, *metallice maculatæ*, posteriores *lineari-lanceolatæ*; anteriores: cellula discoidalis *postice dilatata*, vix clausa; cellula secundaria *nulla*; vena apicalis furcata, ramo altero in apicem, altero in marginem posticum exeunte, infra eam venæ quatuor; subdorsalis *simplex*; submediana non in-crassata; posteriores: vena mediana trifida; vena discoidalis *simplex*; vena apicalis simplex.

Head smooth, the forehead obtuse. Antennæ setaceous, almost as long as the body, the basal joint *short*, clavate. Labial palpi *small, rather thick*, acuminate. Tongue of moderate length. *Abdomen rather thick, short*. Wings with very long cilia, the anterior elongate, *with metallic spots*, the posterior *linear-lanceolate*. In the anterior wings the discoidal cell is *expanded posteriorly*, and hardly closed; there is no secondary cell; the furcate apical vein terminates in the apex and in the hinder margin, below it are four veins; the subdorsal is *simple*; the submedian not thickened; in the posterior wings the median vein is trifid, the discoidal vein is *simple*, and the apical vein is simple.

This genus only contains a single species, of which no specimens have been taken in this country for probably the last thirty years. According to the observations of Tischer and Heeger, the larvæ feed in June, rather gregariously, on *Chenopodium*, *Atriplex*, etc., drawing several leaves together by a number of silken threads; the perfect insect appears in July, and is frequently again met with in May after hybernation.

It is hardly necessary to add that the Linnean habitat, "*Mali foliis subcutanea*," is founded on a misconception that De Geer's figure of a *Lithocolletis*, to which he refers, represents this insect; subsequent authors have copied Linnaeus in indicating apple as the food of the larva, without verifying his observation, or noticing the evident cause of his error.

1. **Roesella**, Linn. F. S. 1406 (1761); Fab.; Hüb. Tin. 399, 400; Haw.; Treit.; Step.; Dup.; Heeger (Isis, 1848). Alis anticis aurantiis, macula oblonga basali prope costam, fascia angulata ante medium, maculis tribus parvis costæ, una majore dorsi, argenteis, fascia interne nigro-marginata, dorso costaque inter maculas nigro-squamatis. Exp. al. 5 lin.

Head and face metallic, dark fuscous. Palpi whitish. Antennæ dark fuscous, the extreme tips whitish. Anterior wings bright orange, with an oblong silvery spot at the base near the costa, and with a silvery slightly angulated fascia before the middle, internally margined with black; on the costa are three equidistant silvery spots, gradually diminishing in size, and nearly opposite the second is a larger silvery spot on the inner margin; along the inner margin and costa, between the spots, are some black scales; cilia fuscous, preceded by a few silvery scales. Posterior wings fuscous, with paler cilia.

Old specimens of this insect are in the collections of Mr. Ingall, Mr. Allis, and the British Museum.

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Genus X. **ANYBIA.**

ANYBIA, n. g. *Elachista* p., Zell.

Capilli læves, frons obtusa. Antennæ abdomine longiores, setaceæ, articulo basali elongato, clavato, crassiusculæ. Palpi labiales medioeres, recurvi, articulo secundo compresso, subclavato, tertio brevior acuto. Haustellum mediocre. Alæ longissime ciliatæ, anteriores læves, dorso non dentato, posteriores lineari-lanceolatæ; anteriores: vena apicalis furcata, infra eam venæ quinque in marginem posticum exeuntes; vena subdorsalis in basi *longe furcata*, in apice non longe distat ab apice submedianæ incrassato; posteriores: e cellula discoidali venæ quinque subobsoletæ in marginem posticum exeunt, in costam una.

Head smooth, the forehead obtuse. Antennæ longer than the abdomen, setaceous, rather thick, the basal joint elongate, clavate. Labial palpi of moderate length, recurved, the second joint compressed, subclavate, the third joint shorter, pointed. Tongue of moderate length. Wings with very long cilia, the anterior *smooth*, with no projections from the inner margin; the posterior linear-lanceolate. In the anterior wings the apical vein is furcate, below it five veins run into the hinder margin; the subdorsal vein has a *long fork* towards the base, its apex is not far distant from the thickened apex of the submedian vein; in the posterior wings five rather obsolete veins proceed from the discoidal cell to the hinder margin, one to the costa.

This genus at present only contains a single species, which is extremely scarce in this country, and consequently we know

nothing of its habits. Schläger says of it, "The larva mines the leaves of *Epilobium hirsutum*, occurring at the same time as *Epilobiella*. The perfect insect appears at the end of July and in August: it is uncommonly abundant, since there are often from thirty to forty larvæ on one plant."

1. **langiella**, Hüb. Tin. 187 (1801); Zell.; Schläger, Bericht. 1847; Treit.?—*niveipunctella*, Sta. Alis anticis nitidis orichalceis, macula transversa supra plicam pone medium nivea. Exp. al.  $4\frac{1}{2}$  lin.

Head bronze. Face white. Palpi, the second joint white, the terminal joint black. Antennæ dark fuscous. Anterior wings shining bronze, with a transverse *snow-white spot above the fold*, beyond the middle; between this and the base are a few white scales in the fold, and a few others lie between it and the apex of the wing; cilia bronzy-grey. Posterior wings bronzy-grey, with grey cilia.

A specimen is in Mr. Shepherd's collection, and one in the collection of the British Museum.

## Genus XI. **ASYCHNA.**

ASYCHNA, n. g. *Elachista* p., Zell.

Capilli læves. Antennæ setaceæ, articulo basali elongato, clavato. Palpi labiales mediocres, curvi, articulo secundo compresso, tertio brevior acuto. Haustellum mediocre, squamatum. Alæ longissime ciliatæ, anteriores *unicolores*, metallicæ, angustæ, posteriores linearilanceolatæ. Anteriores: vena apicalis furcata, supra et infra apicem exit, infra cam venæ duræ, cellula discoidalis postice dilatata; subdorsalis furcata, furca imperfecta; submediana non incrassata; posteriores: venæ medianæ rami tres, obsoleti, vena discoidalis simplex, apicalis simplex.

Head smooth. Antennæ setaceous, the basal joint elongate, clavate. Labial palpi of moderate length, curved, the second joint compressed, the third joint shorter, acute. Tongue of moderate length, clothed with scales. Wings with very long cilia, the anterior *unicolorous*, metallic, narrow, the posterior linear-lanceolate. In the anterior wings the furcate apical vein runs out above and below the apex, below it are two veins; the discoidal cell is dilated posteriorly, the subdorsal vein is furcate, but the lower branch of the fork is abbreviated, the submedian is not thickened; in the posterior wings the median vein has three obsolete branches, the discoidal and apical veins are simple.

Of the four species I have placed in this genus, the first two only really belong here, the other two showing several discrepancies; I was unwilling to multiply the genera here to so great an extent as the formation of separate genera for *ceratella* and

*terminella* would have required. At some future period the discovery of other species perfectly agreeing with them in structure would render the construction of independent genera necessary. In *aratella* the palpi are short, thick, and drooping, the antennæ short and thick, and in the anterior wings the discoidal cell is not closed. In *terminella* the palpi are acute, filiform, ascending, the antennæ are rather thick, and the anterior wings are not unicolorous, but adorned with metallic spots.

None of the larvæ of these species are known, and, excepting *modestella*, all the species are extremely rare.

1. **modestella**, Dup. L. F. xi. 347. pl. 299. f. 8 (1838); Sta. —*splendidella*, Licnig.—*serratella*, Step.? Alis anticis dilute viridicænis, unicoloribus; posticis fusco-griscis, ochreo-ciliatis. Exp. al. 5-5½ lin.

Head and face dark bronzy-green. Palpi whitish, terminal joint fuscous. Antennæ fuscous, the tips whitish. Anterior wings unicolorous, pale bronzy-green, with greyish-yellow cilia. Posterior wings greyish-fuscous, with ochreous cilia.

Common in May, in mixed hedges among oaks; frequently found resting on the flowers of *Stellaria holostea*.

2. **fuscociliella**, Sta. Ent. Trans. i. n. s. 25 (1850).—*aratella*, Sta. Cat. Alis anticis viridicænis, unicoloribus; posticis fusco-griscis, fuscescente-ciliatis. Exp. al. 4½ lin.

Head and face dark bronzy-green. Palpi whitish, the tip of the terminal joint darker. Antennæ fuscous, the tips white. Anterior wings unicolorous, bronzy-green; cilia greenish-grey. Posterior wings greyish-fuscous, with pale fuscous cilia.

Occurs near Bristol, on Durdham Downs, in May and June.

3. **æratella**, Zell. Isis, 1839. p. 212.—*metallella*, Step.? Alis anticis saturate viridicænis, antennis fuscis, brevibus. Exp. al. 4½ lin.

Head, face, and palpi dark bronzy-green. Antennæ dark fuscous, little more than half the length of the anterior wings. Anterior wings dark bronzy-green, somewhat iridescent; cilia fuscous. Posterior wings grey, with paler cilia.

Appears in June and July, among flowers on the borders of corn-fields; has occurred at Ripley and near Reigate.

4. **terminella** (Dale), Hump. and West. B. M. ii. 216 (pl. 113. f. 11?) (1845).—*patriciella*, Sta. Alis anticis metallice brunneis, vel saturate croceis, striga basali argentea per dorsum producta, deinde costam versus reflexa, punctis tribus plicæ, duobus disci argenteis, macula argenteo-alba costali ante apicem, squamis argenteis ad angulum analem; antennis brevibus, fuscis, apice albo. Exp. al. 4 lin.

Head dark bronze. Face silvery. Palpi whitish, terminal joint pale fuscous. Antennæ short, dark fuscous, the tips white. Anterior wings

rich metallic brown, or very dark saffron, with a silvery mark at the base, extending a short distance along the inner margin, and then turning up towards the costa; beyond are three silvery spots on the fold and two on the disc; a silvery white spot is on the costa before the apex; at the anal angle are also some silvery scales; cilia fuscous. Posterior wings fuscous, with paler cilia.

This beautiful species is a great rarity; Mr. Dale met with it in Dorsetshire, Mr. Weir in Sussex, and Mr. Allen Hill near Bristol; it appears in June and July, in moist places among alders.

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## Genus XII. **CHRYSOCORYS.**

CHRYSOCORYS, Curt. Ent. Mag. i. 191 (1833); Id. B. E.; Step. *Schreckensteinia*, Hüb. V. *Elachista* p., Zell.

Capilli lævigati, frons convexa. Antennæ abdomine vix longiores, setaceæ, articulo basali *brevi*, crassiusculæ. Palpi labiales mediocres, subcurvi, tenues, acuti, articuli secundi apice pilis parum incrassato, tertio longitudine subæquali. Haustellum mediocre, nudum. Alæ longe ciliatæ, anteriores angustæ, *costa subretusa, ante apicem convexa*, posteriores lanceolatæ. Anteriores: cellula discoidalis postice dilatata, truncata; vena apicalis simplex, infra eam venæ sex in marginem posticum; subdorsalis simplex *paulo post medium dorsi* exit; submediana non incrassata; posteriores: cellula costalis longissima, angustissima, venæ in dorsum sex, quarum tres e cellulæ termino.

Head smooth, the forehead convex. Antennæ hardly longer than the abdomen, setaceous, rather thick, with the basal joint *short*. Tongue of moderate length, naked. Labial palpi moderately long, rather curved, slender, pointed, the apex of the second joint slightly thickened with hairs, the third joint nearly of equal length. Wings with long cilia, the anterior narrow, *the costa almost retuse, convex before the apex*; the posterior lanceolate. In the anterior wings the discoidal cell is dilated posteriorly and truncate; the apical vein is simple, below it are six veins to the hinder margin; the subdorsal is simple, terminating *a little beyond the middle* of the inner margin; the submedian is not thickened; in the posterior wings the costal cell is very long and extremely narrow, six veins run into the hinder margin, of which three from the end of the cell.

This genus only contains one species, which has a peculiar jerking flight, as it were, hopping on the wing. Hübner has figured a larva and pupa as of this species; but though his figures have been on several occasions copied, no subsequent writer has verified his observations, and consequently it is hardly safe to conclude that the larva and pupa are really as singular as he has

represented them. The perfect insect appears rather attached to brambles; and if the bristly larva feeds under the leaves of the bramble, as Hübner has represented it, there should be no difficulty in re-discovering it.

1. **festaliella**, Hüb. Tin. 449 (1822); Treit.; Zell.; Sta.; Dup.?—*scissella*, Haw.—*scissella*, Curt. B. E. fo. 663.—*angustipennella*, Step.—*Montandonella*, Dup. Alis anticis flavido-æneis, costa fusca, linea a basi per plicam et marginem posticum ducta, linea altera disci ad apicem producta, in medio valde incrassata, saturate fuscis. Exp. al. 6 lin.

Head and face bronzy-green. Palpi and antennæ fuscous. Anterior wings bronzy yellowish-green, with the costa fuscous, a dark fuscous line runs from the base along the fold and hinder margin, and another dark fuscous line begins on the disc, not far from the base, and is continued to the apex of the wing, in the middle of its length it is much thickened; cilia pale fuscous. Posterior wings greyish-fuscous, with paler cilia.

Common in many places, in May and June, among brambles.

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### Genus XIII. **ELACHISTA.**

*Elachista* p., Treit. E. S. ix. 2. 177 (1833); Dup.; Zell. *Porrectaria* p. et *Tinea* p., Haw. *Microsetia* p., *Aphelosetia* p., et *Amaurosetia* p., Step.

Capilli lævigati, frons obtusa. Antennæ setacæ, crassiusculæ, subserratæ, subcompressæ, articulo basali breviusculo, incrassato. Haustellum mediocre. Palpi labiales breviusculi vel mediocres, subarcuati, articulo secundo nonnihil crassiore, tertio acuto. Alæ longissime ciliatæ, anteriores *postice ciliis ampliata*, posteriores linearilanceolatæ. Antiores: cellula discoidalis acuminata, venas *duas vel tres* in costam, unam ex apice *trifidam vel bifidam*, *tres vel duas* in marginem posticum mittit; subdorsalis *simplex*; submedianæ apex incrassatus; posteriores: venæ mediana et discoidalis distinctæ.

Head smooth; the forehead obtuse. Antennæ setaceous, rather thick, slightly serrate, and somewhat compressed; the basal joint thickened and rather short. Tongue of moderate length. Labial palpi rather short, or of moderate length, slightly curved; the second joint a little thicker; the terminal joint acute. Wings with very long cilia, the anterior *appearing from the cilia to be dilated posteriorly*, the posterior linear-lanceolate. In the anterior wings the acuminate discoidal cell sends *two or three* veins to the costa, a *trifid or bifid* vein from its apex, and *three or two* veins to the hinder margin; the subdorsal vein is simple; the apex of the submedian is thickened (in a few cases it is not thick-



ened); in the posterior wings the median and discoidal veins are distinct.

From the variation in the neururation of the anterior wings, as above mentioned, it is extremely probable that, natural as this genus at first sight appears, it may hereafter be capable of subdivision. The perfect insects are not unfrequently met with in little swarms, being actively on the wing during the afternoon or evening; when at rest they sit very closely appressed to the leaf, blade of grass, or other substance on which they happen to repose, and appear perfectly sluggish; but the moment the collector in attempting to catch the inert specimen agitates the foliage, or breathes too roughly on its resting-place, quickly the antennæ, which had lain *couchant* by the side of the insect, start forward, are briskly agitated, and the insect, now completely roused from its seeming torpor, runs forward, spreads its wings, and is—gone. “We think we have it, but yet we have it not.” Most of the species appear to be double-brooded, appearing in May and August; some, which we only meet with in June or July, have probably only a single brood in the year; yet of the double-brooded species the August brood seems far less numerous than the May brood, which is no doubt owing to the perfect insects keeping themselves more concealed, as we have observed to be the case in other late-appearing species.

The fortunate discovery by Mr. Logan of the larva of one of the species, has already led to the discovery of a considerable number; no less than eighteen different larvæ having been already distinguished, several of which have been reared. From these we find that the habit of the larvæ of this genus is to mine in the leaves, and down the stems of grass; but there is considerable diversity in the mode of mining, some species remaining always at the top of the leaf, others descending down the stem towards the root; in the mines of some species the leaf remains flat, in others it has an inflated or puckered appearance. The larvæ of the May brood may be found throughout the winter and early spring; the larvæ of those species which do not appear in the perfect state till June or July, may be met with in April and May; the larvæ of the August brood, feeding up at the end of June, are less easily observed, from the general luxuriance of vegetation at the time. The larva when full-fed quits the mine and changes to a naked, rather angulated pupa, on the stem or leaf of grass, or some neighbouring plant; a belt of silk is generally placed round the middle of the pupa, which is also attached by its tail, but no outer covering of silk is made by any of the

species we have yet observed, excepting *E. rufocinerea*, of which, though the larva has not been found, the pupa has on several occasions been met with and reared.

The species of this genus are extremely numerous, and forty are already known as British, which may be arranged in the following table:—

- a*. Anterior wings dark brown or black, with sharp metallic fasciæ and spots. Species 1–5.
- a a*. Anterior wings dark brown or black, with a distinct pale fascia and spots. Species 6–11.
- a a a*. Anterior wings grey or black, with an indistinct pale fascia and spots, or with spots only. Species 12–21.
- a a a a*. Anterior wings dark fuscous or black, with a single distinct white, whitish, or yellowish fascia.
- b*. Head dark. Species 22–24.
- b b*. Head pale. Species 25–28.
- a a a a a*. Anterior wings white or grey, with a distinct dark spot on the fold in the middle. Species 29–33.
- a a a a a a*. Anterior wings white, with a few distinct dark spots. Species 34, 35.
- a a a a a a a*. Anterior wings white or whitish, irrorated with dark atoms. Species 36–38.
- a a a a a a a a*. Anterior wings unicolorous. Species 39, 40.

1. **Pfeifferella**, Hüb. Tin. 398 (1816); Stép.; Zell.; Sta.—*quadriguttella*, Haw. Alis anticis nitidis aurco-brunneis, fascia angulata ante medium, maculis duabus *suboppositis* triangularibus pone medium nitidis aureis. Exp. al. 4 lin.

Head, face, and palpi golden-brown. Antennæ fuscous. Anterior wings glossy golden-brown, with a slender angulated bright golden fascia before the middle, nearest to the base on the inner margin; beyond the middle is a triangular golden spot on the inner margin, and *nearly opposite to it*, but placed a *little* posteriorly, is a larger spot of the same colour on the costa; cilia golden-brown, at the extreme apex grey. Posterior wings greyish-purple, with grey cilia.

Not uncommon in many localities in May; it seems rather partial to a chalky soil, yet I have found it on clay.

2. **Treitschkiella**, F. v. R. 297. pl. 100. f. 4 (1843); Sta.; Dup.? Alis anticis nitidis aurco-brunneis, fascia arcuata ante medium, macula triangulari dorsali pone medium, macula triangulari costali *posteriore*, nitidis aureis. Exp. al. 3 lin.

Head, face, and palpi golden-brown. Antennæ fuscous (annulated with whitish?). Anterior wings shining golden-brown, with a slender, slightly curved, pale golden fascia before the middle, nearest the base on the inner margin; beyond the middle is a triangular pale golden spot on the inner margin, and *beyond it* is a costal spot, nearly trian-

gular, of the same colour; cilia golden-brown. Posterior wings greyish-fuscous, with paler cilia.

The perfect insect appears in May, and was thought to frequent the dog-wood. Two old specimens of this insect are in Mr. Doubleday's collection.

3. **Gleichenella**, Fab. S. I. ii. 303. 81 (1781).—*Gleichella*, Fab. E. S.; Haw.; Step.; Sta.—*trifasciella*, Tengstr. Alis anticis brunneonigris, basi, fascia recta in medio, fascia angulata ante apicem nitidis, aureis; antennis fuscis. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi bronzy. Antennæ fuscous. Anterior wings brown-black, the base bright golden, a bright golden, nearly straight fascia in the middle, and a bright golden, angulated fascia before the apex, composed, as it were, of two opposite spots united by a third spot beyond them on the disc; cilia fuscous. Posterior wings grey, with paler cilia.

Not uncommon in June and July, flying over the short grass, under the shelter of furze-bushes, etc.; it occurs at Dartford Heath, at Mickleham, and near Bristol.

4. **Brunnichella**, Linn. S. N. (12), 898. 448 (1767).—*magnificella*, Zell.; Sta. Alis anticis aureo-brunneis, fascia cuprea prope basin, fascia recta in medio, macula transversa dorsi ad angulum analem, macula posteriore costæ obliqua, auratis; antennis fuscis, ante apicem albis. Exp. al.  $3-3\frac{1}{2}$  lin.

Head, face, and palpi bronzy-fuscous. Antennæ dark fuscous, with a broad white ring before the apex. Anterior wings golden-brown, close to the base is a coppery fascia; in the middle is a straight golden fascia; at the anal angle is a triangular golden spot reaching half across the wing, and beyond it on the costa is an oblique golden spot, pointing inwards, but not reaching the apex of the dorsal spot; cilia greyish-brown. Posterior wings grey, with grey cilia.

This pretty species has been frequently taken by Mr. Douglas, in the hilly field at Headley Lane, by sweeping; it appears to be double-brooded, having occurred in May and August.

5. **magnificella**, Tengstr. F. F.-F. 147 (1847).—*regificella*, Sircom, Zool. 1849. App. xlii. Alis anticis aureo-brunneis, fascia recta argentea prope basin, macula transversali utrinque abbreviata in medio, macula tenui transversa dorsi pone medium, macula transversa costæ posteriore, argenteis. Exp. al. 4 lin.

Head and face fuscous. Palpi whitish. Antennæ fuscous. Anterior wings golden-brown, with a silvery fascia near the base, a transverse silvery spot in the middle, not reaching either margin; at the anal angle is a narrow silvery spot reaching half across the wing, and beyond it on the costa is another silvery spot also reaching half across the wing; cilia fuscous. Posterior wings brown-grey, with paler cilia.

Taken at the end of July and beginning of August, by Mr. Sircom and Mr. Vaughan, at Brislington, near Bristol.

6. **apicipunctella**, Sta. Cat. p. 26 (1849). Alis anticis nigris fascia obliqua ante medium, maculisque duabus oppositis, *cum tertia apicali sæpe connexis*, argenteo-albis (♀ alis anticis atris, fascia maculisque argenteis, basi etiam argentea); capite cum palpis argenteo-albo. Exp. al.  $4-4\frac{1}{2}$  lin.

Head, face, and palpi silvery-white. Antennæ fuscous, the tips whitish. Anterior wings blackish, with an oblique silvery-white fascia before the middle (nearest the base of the wing on the costa where it is broadest); beyond the middle are two silvery white spots, one on the inner margin and one rather posterior on the costa; *beyond them lies a third spot on the apex of the wing, by which they are frequently united into an angulated fascia*; cilia dark grey, with black hinder marginal line. (In the female the anterior wings are black, the silvery markings brighter, and the extreme base of the wing is also silvery.) Posterior wings grey, with grey cilia.

Common on mosses, or bogs, in the south of Scotland, in June.

7. **albifrontella**, Hüb. Tin. 432 (1816); Zell.; Sta.; Step. ♀—*quadrella*, Haw.; Step. Alis anticis nigris, fascia fere recta ante medium (♂ sæpe interrupta), maculis duabus suboppositis ante apicem, costali posteriore *argenteo-albis*; capite, cum palpis, *argenteo-albo*. Exp. al.  $4-4\frac{1}{2}$  lin.

Head, face, and palpi *silvery-white*. Antennæ dark fuscous. Anterior wings brown-black, with a slightly oblique *silvery-white* fascia before the middle, nearest the base of the wing on the costa (in the ♂ this is generally interrupted on the fold); on the inner margin at the anal angle is a *silvery-white* triangular spot, and beyond it on the costa is a similar larger one; cilia grey, with some black scales. Posterior wings grey, with paler cilia.

Very common in woods in June. The larva was found by Mr. Scott, last May, feeding in the upper part of the leaves of *Aira cespitosa*.

8. **Holdenella**, Edleston in lit. Alis anticis griseo-nigris, postice saturatoribus, fascia obliqua ante medium, maculaque triangulari ad angulum analem, albidis, *macula costali ante apicem quadrata, alba*; capite griseo, palpis albidis. Exp. al. 5 lin.

Head and face grey. Palpi whitish. Antennæ fuscous, with paler annulations. Anterior wings greyish-black, darker towards the apex; a little before the middle is an oblique whitish fascia nearest the base of the wing on the costa; at the anal angle is a triangular whitish spot, and *beyond it on the costa* is a more distinct whiter spot, *which is not triangular, its apex being truncate*; cilia pale grey. Posterior wings grey, with paler cilia.

In Mr. Edleston's collection, is a single specimen, taken near London.

9. **atricomella**, Sta. Cat. p. 25 (1849).—♀ *alienella*, Sta.—*exiguella*, Step.? Alis anticis nigris, *fascia interrupta angulata* ante medium, maculis duabus suboppositis, costali posteriore, ante apicem albidis; capite nigro, palpis griseis. (♀ alis anticis ad basim griseis, postice griseo-nigris, *fascia obliqua ante medium*, maculisque duabus triangularibus suboppositis ante apicem albis; capite griseo, palpis albidis.) Exp. al.  $4\frac{1}{2}$ –5 lin.

Head greyish-black. Face and palpi grey. Antennæ dark grey. Anterior wings greyish-black, with an *interrupted slightly angulated* fascia before the middle, and two opposite spots towards the apex whitish; the fascia being nearer the base of the wing on the costa, and the costal spot being posterior to the dorsal spot, and also larger; cilia grey, with some blackish scales. Posterior wings grey, with paler cilia. (In the female the head is *dark grey*, the face and palpi whitish; the anterior wings are grey at the base, posteriorly greyish-black; before the middle is a *white, slightly oblique fascia*, and towards the apex are *two triangular white, nearly opposite spots*.)

Occurs near London, not uncommonly, at the end of May and in June, in hedges and on palings. The larva feeds at the beginning of May, on *Dactylis glomerata*, mining down the leaves, and then down the stem.

10. **luticomella**, Zell. Isis, 1839. p. 212; Sta.—*guttella*, Haw.? Step.? Alis anticis brunneis, fascia ante medium (♂ angusta, ♀ lata) maculis duabus oppositis (♀ majoribus) ante apicem flavidis; capite, cum palpis, luteo. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head, face, and palpi yellow. Antennæ fuscous. Anterior wings brown, with a *yellowish* fascia before the middle (narrow and slightly curved in the male, broad and straight in the female), and two *yellowish* nearly opposite spots towards the apex (these spots are small in the male, larger and triangular in the female); cilia greyish-brown. Posterior wings brownish-grey, with grey cilia.

Not uncommon in many localities at the end of June and beginning of July. The larva feeds on *Dactylis glomerata* in May, and the perfect insect has been reared by Mr. Logan and Mr. Scott; the former promises drawings of its transformations in his forthcoming 'Illustrations of Scottish Lepidoptera.'

11. **Kilmunella**, Sta. Cat. p. 25 (1849). Alis anticis saturate obscure griseis, *fascia recta alba* ante medium, maculis ante apicem duabus in fasciam saepe connexis albis (♀ basi tota alba, sub costa tantum cinerea); capite, cum palpis, saturate griseo. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head, face, and palpi dark grey. Antennæ dark grey. Anterior wings dingy dark grey, with a *nearly straight white fascia* in the middle, and two nearly opposite *white spots before the apex, frequently united*

into a fascia; cilia grey, at the apex whitish. (In the female the entire base of the wing is white, with the exception of a grey streak along the costa.) Posterior wings grey, with paler cilia.

Common on bogs and mosses in June and July; on the summit of the hill above Kilmun it is extremely plentiful, flying freely in the afternoon, threading its way between the stems of grass or rushes, and occasionally settling for an instant.

12. **alpinella**, Edleston in lit. Alis anticis fuscis, maculis tribus indistinctis albidis, una dorsali ante medium, secunda ad angulum analem, tertia costali ante apicem; capite fusco. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi fuscous. Antennæ fuscous. Anterior wings fuscous, with three indistinct whitish spots, one on the inner margin before the middle, one at the anal angle, and one rather beyond it on the costa; cilia pale fuscous. Posterior wings grey, with paler cilia.

Taken by Mr. Edleston, on moors near Manchester, in August.

13. **cinereo-punctella**, Haw. L. B. 582 (1829); Step.; Sta. Alis anticis saturate griscis, macula obliqua costæ ante medium, macula parva ad angulum analem, maculaque costæ ante apicem albidis, puncto apicis nigro; capite griseo, fronte palpisque albidis. Exp. al.  $3\frac{3}{4}$ —4 lin.

Head grey. Face and palpi whitish. Antennæ grey. Anterior wings dark grey; in the middle is an oblique whitish spot from the costa reaching more than half across the wing; at the anal angle is a very small whitish spot, and on the costa immediately before the apex is another whitish spot, which precedes an apical black spot; cilia grey. Posterior wings grey, with paler cilia.

Appears at the end of May and beginning of June; plentiful on the chalk downs beyond Croydon, also on Durdham Downs, near Bristol.

14. **trapeziella**, Sta. Cat. p. 26 (1849).—*guttifera*, Haw. ? Alis anticis brunneo-nigris, stria plicæ basali, punctis duobus in medio, altero costæ, altero plicæ, puncto tertio plicæ supra angulum analem, puncto quarto apicis argenteo-albis; capite albedo, fronte palpisque albis. Exp. al.  $4$ — $4\frac{1}{2}$  lin.

Head whitish. Face and palpi white. Antennæ fuscous. Anterior wings dark brown-black, with a short silvery-white streak at the base along the fold; in the middle are two small silvery-white spots, one on the costa, the other on the fold, a third spot lies on the fold above the anal angle, and a fourth in the apex of the wing; cilia fuscous. Posterior wings fuscous, with paler cilia.

A specimen taken at West Wickham Wood, in June, is in Mr. Bedell's collection. Mr. Douglas and I have each a specimen, the localities of which are unknown.

15. **nigrella**, Hüb. 285 (1816); Haw.; Treit.; Sta.; Step. ?

Zell. ? Alis anticis (♂) griseis, *fascia fere recta albida obsoleta ante medium, maculis duabus ante apicem oppositis, quarum apices postice spectant in fasciam conjunctis, apice rotundato, ciliis griseis, circa apicem externe albidis* (♀ alis anticis ad basim saturate griseis, postice nigris, fascia maculisque albis distinctis, macula costali non pone maculam dorsalem); capite grisco, fronte argenteo-grisca, palpis dilute griseis. Exp. al. 4 lin.

Head grey. Face silvery-grey. Palpi pale grey. Antennæ fuscous. Anterior wings (of the ♂) grey, with an indistinct *nearly straight* whitish *fascia* before the middle, and an angulated fascia (composed of two whitish opposite spots, with their apices sloping posteriorly) towards the apex; a somewhat *rounded* dark *hinder marginal line* runs through the grey cilia, which at the apex are whitish. (In the ♀ the anterior wings are dark grey at the base, and beyond the first fascia black; the first fascia is whiter and more distinct, and the opposite spots towards the apex are much whiter and more distinct; the costal spot is *scarcely posterior* to the dorsal spot.) Posterior wings grey, with paler cilia.

Not uncommon in May and August, generally occurring near hedges. The larva feeds in the upper part of a slight-growing grass (perhaps *Poa trivialis*) in April and July.

16. **subnigrella**, Dougl. Ent. Trans. ii. n. s. 210. pl. xviii. f. 1 (1854). Alis anticis (♂) griseis, *fascia obliqua albida obsoleta ante medium, fascia angulata albida obsoleta ante apicem, quasi e maculis duabus composita, ciliis apicis truncati* griseis (♀ alis postice saturatioribus, fascia maculisque latioribus, albidioribus, *macula costali distincte post maculam dorsalem*); capite grisco, fronte argentea, palpis griseis. Exp. al.  $3\frac{1}{2}$  lin.

Head grey. Face rather silvery. Palpi pale grey. Antennæ fuscous. Anterior wings (of the ♂) dingy grey, with an indistinct *rather oblique* whitish *fascia* a little before the middle, being nearest the base on the costa; towards the apex is a whitish angulated fascia, composed, as it were, of two indistinct opposite spots; cilia at the *rather truncate apex* grey. (In the ♀ the anterior wings are darker, especially posteriorly, and the fascia and spots are whiter and broader; *the costal spot is decidedly posterior* to the dorsal spot.) Posterior wings grey, with paler cilia.

Common at the beginning of June and in August, on the old tram-road beyond Croydon. The larva feeds in April, May, and July, in the leaves of *Bromus erectus*, not descending the stems; the mined places assume a purplish tinge; the pupa may frequently be found on the upper side of the leaf, close to where it quits the stem.

17. **occultella**, Dougl. Ent. Trans. i. n. s. Proc. 7 (1850); Sta. Alis anticis grisco-fuscis, fascia angulata albida valde obsoleta ante me-

dium, maculis duabus triangularibus *subdistinctis*, ante apicem albidis, non confluentibus, apice non truncato; ciliis griseis; capite, cum palpis, griseo. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head, face, and palpi grey, rather shining. Antennæ fuscous. Anterior wings shining greyish-fuscous, with a very indistinct whitish fascia a little before the middle; the fascia is angulated on the fold, and is nearest the base on the costa; towards the apex are two rather conspicuous triangular whitish spots, that on the costa being nearest to the apex; they are distinctly separated by the intervening ground-colour of the wing; the apex of the wing is rounded, with a dark hinder marginal line in the grey cilia. Posterior wings grey, with paler cilia.

Mr. Douglas discovered this species on the 25th of May, 1848, flying plentifully over some long grass growing under trees in a damp part of West Wickham Wood.

18. **consortella**, Sta. Sup. Cat. p. 9 (1851). Alis anticis (♂) angustis, griseis, puncto parvo albedo plicæ ante medium, stria nigra plicæ in medio, maculis oppositis ante apicem albidis, fere in fasciam angulatam confluentibus, striola albida in apice ducta (♀ fascia media albida distincta, maculis oppositis fere in fasciam obliquam connexis); capite griseo. Exp. al.  $3$ – $3\frac{1}{2}$  lin.

Head, face, and palpi grey. Antennæ dark grey. Anterior wings narrow, (of the ♂) dark grey, with apparently no trace of the medial fascia, but on the fold is a small whitish spot, followed by a short black streak; the opposite spots towards the apex are whitish, and nearly form an angulated fascia; from their union some whitish scales are continued into the apex of the cilia; cilia grey, except the whitish apex. (In the ♀ the medial fascia is distinct, and the opposite spots nearly unite to form an oblique fascia.) Posterior wings grey, with paler cilia.

Taken by Mr. Logan in March, amongst grass, on Arthur's Seat.

19. **pulchella**, Haw. L. B. 582 (1829); Step.; Sta. Alis anticis ad basim albis, postice nigris, macula costæ prope basim elongata grisea, maculis duabus triangularibus suboppositis, ante apicem albis; capite, cum palpis, albo. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ fuscous. Anterior wings with the basal half entirely white (except a longitudinal grey patch along the costa, which terminates before the middle of the wing, so as to leave an entire white fascia), the apical half dark greyish-black, with two triangular nearly opposite white spots, that on the costa being rather nearer the apex; cilia grey, with a dark hinder marginal line. Posterior wings pale grey, with paler cilia.

Occurs singly among grass in May and June; as all the specimens with which we are acquainted are females, it is probably the female of some other known species, possibly of *obscuraella*.



20. **Bedellella**, Sircom, Zool. 1848. p. 2057; Sta. — *nigrella*, Dup. Alis anticis *latiusculis*, *postice truncatis*, (♂) griseis (♀ albidioribus), fascia recta ante, fascia angulata pone medium albidis; capite cum palpis griseo. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi grey. Antennæ dark fuscous. Anterior wings *rather broad and posteriorly truncate*, (of the ♂) grey, (of the ♀ paler, and at the base almost whitish), with a straight whitish fascia before the middle, and an angulated whitish fascia towards the apex, both rather indistinct; at the apex is a dark hinder-marginal line, which is almost straight, giving the wings a truncate appearance; cilia grey, at the apex whitish. Posterior wings grey, with paler cilia.

Very abundant in May and August among the short grass of the chalk downs; occurs at Sanderstead and near Bristol.

21. **obscura**, Sta. Cat. p. 26 (1849). Alis anticis dilute griseis, obscurius squamatis, fascia media, maculisque duabus oppositis ante apicem dilutioribus, *obsoletissimis*; capite cum palpis griseo. Exp. al.  $4\frac{1}{2}$  lin. (Var. Fascia maculisque *subdistinctis*; capite cum palpis *albido*. Exp. al.  $3\frac{1}{2}$  lin.)

Head, face, and palpi pale grey. Antennæ dark grey. Anterior wings grey, with darker scales, and with *very faint* indications of a paler fascia in the middle, and two paler opposite spots before the apex. (The smaller summer brood has the fascia and spots more distinct.) Posterior wings pale grey, with paler cilia.

Abundant on meadows and among grass, near hedges, in May, and again in August, but, as above mentioned, the summer specimens differ slightly from those taken in spring; the female of this species has not yet been observed, unless it be *pulchella*.

22. **Albinella**, Sta. Cat. p. 27 (1849); Haw.? Step.? Alis anticis fuscis, fascia media *recta latiuscula flavida*, in *plica aurantia*, ciliis *griseo-fuscis*; capite cum palpis fusco. Exp. al.  $4\frac{1}{2}$ –5 lin.

Head, face, palpi, and antennæ *dark fuscous*. Anterior wings dark fuscous, with a *straight, rather broad, yellowish fascia* in the middle, *slightly suffused with orange on the fold*; cilia *greyish-fuscous*. Posterior wings brown-grey, with grey cilia.

I am not aware of the localities where this species has been taken. I have a specimen, and there is one in Mr. Bond's collection.

23. **zonariella**, Tengström, F. F.-F. 150 (1847).—*bisulcella*, Zell.; Sta. Alis anticis fuscis, fascia media *rectiuscula flavida*, *externe aurantia*, *ad dorsum latiore*; ciliis *apicis albidis*; capite cum palpis *brunneo*. Exp. al. 4 lin.

Head, face, and palpi *brown*. Antennæ *greyish-fuscous*. Anterior wings dark fuscous, with a *yellowish fascia* in the middle; the fascia is nearly straight, *broadest on the inner margin*, and *is towards the apex* of the wing *of an orange colour*; cilia grey, but *at the apex* beyond the

dark hinder marginal line *whitish*. Posterior wings brown-grey, with paler cilia.

Formerly taken by Mr. Sircom in August, near Bristol. Mr. Scott bred a specimen last summer from a larva he found near Renfrew, mining in May the leaves of (he believes) *Aira cæspitosa*.

24. **gangabella** (F. v. R.), Zell. Ent. Ztg. 1850, p. 202; Sta. Alis anticis fuscis, *fascia media flava sub costam attenuata, maculam trigonam dorsi simulante*; ciliis fusco-griseis; capite cum palpis fusco. Exp. al. 4 lin.

Head, face, palpi, and antennæ dark fuscous. Anterior wings dark fuscous, with a *straight yellow fascia* in the middle, *very narrow towards the costa, but swelling out to a triangular spot on the inner margin*; cilia *greyish-fuscous*. Posterior wings grey, with paler cilia.

A scarce species, taken by Mr. Douglas in Headley Lane, and by myself at Dartford Heath, in June.

25. **obliquella**, Edleston in lit. Alis anticis fuscis, *fascia fere recta lutea paulo post medium*; ciliis apicis *dilute luteis*; capite cum palpis luteo; antennis fuscis *albo-annulatis*. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi *luteous*. Antennæ dark fuscous, *annulated with white*. Anterior wings dark fuscous, with a *nearly straight, yellowish fascia*, rather beyond the middle; *apical cilia pale yellowish* beyond a dark hinder marginal line; cilia at the anal angle fuscous. Posterior wings fuscous, with paler cilia.

Two specimens in Mr. Edleston's collection, taken near London.

26. **abruptella**, n. sp. Alis anticis fuscis, *fascia fere recta pone medium alba*; ciliis apicis *truncati albidis*; capite cum palpis albo; antennis fuscis. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi *white*. Antennæ fuscous. Anterior wings fuscous, with a *nearly straight white fascia* a little beyond the middle; the cilia at the *truncate* apex are *whitish*. Posterior wings grey, with paler cilia.

Two specimens in Mr. Allis's collection.

27. **Megeriella**, Sta. Cat. p. 27 (1849); Zell.; Dougl. Ent. Trans. ii. n. s. 2. pl. xviii. f. 2; Step.?—*unifasciella*, Haw.? Alis anticis *griseo-fuscis*, *fascia media tenni flavida*, superius recta, inferius basim versus flexa; ciliis apicis *flavidis*; capite cum palpis *albido*; antennis fuscis. Exp. al. 5 lin.

Head, face, and palpi *whitish*. Antennæ greyish-fuscous. Anterior wings *greyish-fuscous* (darker in the ♀), with a *yellowish fascia* in the middle; this fascia is *very slender*, when it first leaves the costa it is nearly straight, but after reaching the fold it turns a little towards the base of the wing, it is broadest on the inner margin, its outer edge

which is less sharply defined than the inner edge being very nearly straight; cilia grey, but at the apex, beyond the dark hinder marginal line, *yellowish*. Posterior wings grey, with paler cilia.

Common in hedges in May and August. The larva feeds in March and April, in the upper part of the leaves of a coarse-growing grass (I had thought this grass was *Melica uniflora*, but am now doubtful on that point; it is not a very easy matter to distinguish each species of grass from an examination of the leaf only); its mines are rather puckered and brownish; the summer brood of the larva I have not observed.

28. **adscitella**, Sta. Sup. Cat. p. 10 (1851). Alis anticis *dilute grisco-fuscis, fascia media tenui albida interrupta*; ciliis apicis *albidis*; capite cum palpis *albido*. Exp. al.  $5\frac{1}{2}$  lin.

Head, face, and palpi *whitish*. Antennæ fuscous. Anterior wings *pale greyish-fuscous, with two slender whitish opposite spots in the middle, forming an interrupted fascia*; the dorsal spot is rather the larger of the two; cilia grey, but at the apex beyond the dark hinder marginal line *whitish*. Posterior wings grey, with paler cilia.

Occurs near Chesterfield in June; Mr. Allis has now distributed it in several collections.

29. **cerusella**, Hüb. 183 (1801); Haw.; Step.—*cerussella*, Zell. Alis anticis *albidis, atomis fuscis leviter irroratis, fascia interrupta pone medium, altera integra ante apicem fuscis, priore maculam nigram interne gerente*, apice fusco; ciliis grisco-fuscis; capite cum palpis *albido*. Exp. al. 5 lin.

Head, face, and palpi *whitish*. Antennæ *whitish*. Anterior wings *whitish, with some scattered fuscous scales, with an interrupted fuscous fascia beyond the middle, internally with a black spot on the fold, and an uninterrupted fascia towards the apex, with a minute black spot internally*; apex of the wing fuscous; cilia *greyish-fuscous*. Posterior wings grey, with paler cilia.

Common in marshy ground in May and at the end of August; the larva feeds in the upper part of the leaves of the common reed (*Arundo Phragmites*) at the beginning of August; the spring brood of the larva has not yet been observed.

30. **Rhynchospora**, Sta. Zool. 1848, p. 2165. Alis anticis *albidis, puncto in medio plicæ nigro, costa, dorso, fascia extrorsum angulata pone medium, macula costali ante apicem majore, maculaque dorsali ad angulum analem minore, obscure griseis*; capite cum palpis *albo vel albido*. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi *white or whitish*. Antennæ fuscous. Anterior wings *dirty-whitish, with a dirty-grey streak along the costa to beyond the middle, and a dirty-grey streak along the inner margin; beyond the middle is a dirty-grey fascia, angulated posteriorly*; a rather large

costal spot before the apex, and a small spot at the anal angle are dirty-grey; cilia grey. Posterior wings dirty-grey, with paler cilia.

Common in the North, on mosses and bogs; also occurs in the Cambridgeshire fens, and met with last summer by Mr. Boyd in the New Forest, who observed it to frequent the cotton-grass (*Eriophorum*); appears in June and July.

31. **Eleochariella**, Sta. Sup. Cat. p. 10 (1851). *Alis anticis griseis, plica albida, puncto in medio nigro, strigula obliqua costæ apicem versus, punctoque opposito dorsi albidis; capite cum palpis saturate griseo.* Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi dark grey. Antennæ dark fuscous. Anterior wings grey, with a whitish line along the fold interrupted by a black spot in the middle; towards the apex is a whitish streak on the costa sloping towards the hinder margin, and beneath it on the inner margin is a small whitish spot; cilia pale grey. Posterior wings grey, with paler cilia.

I met with this in July among rushes, on the top of the hill above Kilmun.

32. **biatomella**, Sta. Zool. 1848, p. 2165. *Alis anticis griseo-ochreis, puncto fusco plicæ albidæ mediæ, strigula obliqua costali pone medium, in puncto altero fusco terminata, punctoque obsoleto costali ante apicem albidis; capite ochreo-griseo; fronte palpisque albidis.* Exp. al.  $3\frac{1}{2}$  lin.

Head greyish-ochreous. Face and palpi whitish. Antennæ fuscous. Anterior wings greyish-ochreous, with a whitish streak along the fold, in which is a fuscous spot about the middle of the wing and whitish oblique (sloping posteriorly) streak from the costa beyond the middle, having at its termination another fuscous spot; on the costa immediately before the apex is a small whitish spot; cilia, beyond a fuscous hinder-marginal line, grey. Posterior wings grey, with paler cilia.

Occurs rather freely on Durdham Downs, near Bristol, from May to July.

33. **serricornis**, Logan in lit. *Alis anticis griseis, puncto nigro plicæ pone medium, strigula brevi obliqua costali albida ante apicem; capite cum palpis griseo; antennis apicem versus serratis.* Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi grey. Antennæ towards the apex much serrated, dark grey, with paler annulations. Anterior wings grey, with a black spot on the fold beyond the middle, and a short oblique (sloping posteriorly) whitish streak from the costa, before the apex, internally margined with dark grey; cilia, beyond a darker hinder-marginal line, grey. Posterior wings grey, with paler cilia.

Two specimens, one in Mr. Weir's and one in Mr. Logan's collection.

34. **triatomea**, Haw. L. B. 535 (1829); Step.—*dispilella*, Zell.; Sta.—*bipunctella*, Treit. ? Alis anticis albis, punctis duobus nigris, altero plicæ ante medium, altero disci pone medium; capite cum palpis albo. Exp. al. 4–4½ lin.

Head, face, and palpi white. Antennæ grey. Anterior wings white, with two small black spots, one on the fold a little before the middle, the other midway between that and the apex; at the anal angle are frequently a few black scales (forming Haworth's "third atom"); cilia whitish, with a few greyish scales. Posterior wings greyish-white, with paler cilia.

Not uncommon among grass in chalky places in June and July.

35. **triseriatella**, n. sp. Alis anticis albis, seriebus tribus atomorum nigrorum disci; capite cum palpis albo. Exp. al. 3½ lin.

Head, face, and palpi white. Antennæ fuscous. Anterior wings white, with three rows of black scales on the disc; cilia whitish. Posterior wings grey, with whitish cilia.

A specimen of this insect is in the collection of Mr. Vaughan, who took it, June 26, 1849, by sweeping the short grass on the top of St. Vincent's Rocks, Durdham Downs.

36. **collitella** (F. v. R.), Dup. L. F. Sup. iv. 327. pl. 77. f. 9 (1842).—*subocellea*, Step. ? Alis anticis albis, fasciis tribus ochreis, prima basim versus *obsoleta*, *secunda pone medium*, *tertia saturatiore* ante apicem, disci parce nigro-squamato, *serieque squamarum nigrarum ad marginem posticum truncatum*; capite albo. Exp. al. 4 lin.

Head, face, and palpi white. Antennæ fuscous, annulated with white. Anterior wings white, with three dirty-ochreous fasciæ; the first, near the base, *very indistinct*, the second *beyond the middle*, and the third, and darkest, towards the apex; on the disc are a few scattered black scales, and *there is a row of black scales along the truncate hinder margin*; cilia whitish, the tips fuscous. Posterior wings grey, with paler cilia.

Occurs on Durdham Downs, near Bristol, in July.

37. **pollinariella** (Zell.), Dup. L. F. xi. 508. pl. 307. f. 5 (1838); Zell.; Sta. Alis anticis albis, fasciis tribus ochreis, costam versus fusciscentibus, prima basim versus, *secunda in medio*, *tertia ante apicem*, disco parce fusco-squamato; capite albo. Exp. al. 4–5 lin.

Head, face, and palpi white. Antennæ fuscous. Anterior wings white, with three dirty-ochreous fasciæ, darkest towards the costa; the first is near the base, *the second in the middle*, and the third towards the apex; on the disc, and along the fold, are some scattered fuscous scales; cilia whitish, with a dark fuscous hinder-marginal line, the extreme tips grey. Posterior wings grey, with paler cilia.

Occurs at Sanderstead, Mickleham, and Durdham Downs, in June and July.

38. **rufocinerea**, Haw. L. B. 535 (1829); Step.; Zell.—♀ *flos-lactis*, Haw.; Step. Alis anticis (♂) albidis brunnescente suffusis; posticis griseis. (♀ alis anticis albis dilutissime lutescente suffusis; posticis dilute griseis.) Exp. al. 4–5 lin.

♂ Head, face, and palpi whitish. Antennæ brownish. Anterior wings whitish, very much suffused with brownish, the inner margin and discoidal cell only remaining of the ground-colour; cilia dirty-whitish, with dark fuscous scales. Posterior wings dark grey, with greyish-ochreous cilia.

♀ Head, face, and palpi white. Antennæ whitish, annulated with fuscous. Anterior wings whitish, with numerous scattered scales of a very pale yellowish tint; cilia whitish, with some fuscous scales. Posterior wings pale grey, with yellowish cilia.

A most abundant species throughout the country; it appears at the end of April, directly the first warm weather sets in, and continues throughout May; it especially frequents the sides of hedges and ditches, where the males may be seen flying briskly along, about sunset, just above the tops of the grass, in search of the females, which may frequently be observed perched on the summit of a blade of grass, with the wings in continual vibration. In spite of the excessive abundance of this insect, we have hitherto failed in our attempts to find the larva; but the pupa has, on three separate occasions, been met with: once on the stem of a dock by Mr. Douglas, and I once found it under a leaf of *Veronica Chamædrys*, and once on the upper side of an ivy-leaf, where it lay conveniently in the angle of the leaf, with a silken awning spread over it.

39. **ochreella**, Sta. Cat. p. 27 (1849).—var. *nebulella*, Sta. Alis anticis ochreis, costam versus fuscescentibus; posticis fuscis, ochreo-ciliatis. Exp. al. 5 lin.

Head, face, and palpi yellowish-ochreous. Antennæ fuscous. Anterior wings yellowish-ochreous, somewhat fuscous along the costa, especially at the base; cilia yellowish-ochreous. Posterior wings fuscous, with ochreous cilia.

Has occurred in the Cambridgeshire fens, and in the north of England, in June.

40. **cygnipennella**, Hüb. Tin. 207 (1801); Zell.; Dougl. Ent. Trans. ii. n. s. 211. pl. xviii. f. 3.—*cygnipennis*, Haw.—*cygnella*, Treit.; Dup.—♀ *cygnipennella*, Step.—♂ *semialbella*, Step. Alis anticis albis immaculatis; posticis (♂) fuscis, albido-ciliatis (♀ albidis, albo-ciliatis). Exp. al. 5–6½ lin.

Head, face, palpi, and antennæ white. Anterior wings immaculate, white; cilia white. Posterior wings (of the ♂) fuscous, with whitish cilia (of the ♀ whitish, with white cilia).

Common at Sanderstead, and in many other localities, in June; the perfect insects appear very sluggish. The larva mines the upper part of the leaves of the *Dactylis glomerata* in May.

#### Genus XIV. **TISCHERIA.**

TISCHERIA, Zell. Isis, 1839, p. 219; Dup. Cat. *Elachista* p., Treit.; Dup. L. F. *Aphelosetia* p., Step.

*Capilli occipitales suberecti*; frontales depressi. Palpi labiales breves, filiformes, penduli. Haustellum mediocre, squamatum. Antennæ alis anterioribus breviores, ♂ *piloso-ciliatæ*, ♀ *nudæ*, articulo basali dentem pilosum gerente. Alæ longe ciliatæ, anteriores subcaudulatae, posteriores lanceolatae. Tibiæ posticæ pilosæ. Alæ anteriores: cellula discoidalis postice aperta, vena subcostalis in basi longissime obsoleta, ramos quinque in costam, mediana tres in marginem posticum emittit, vena subdorsalis simplex; posteriores: venæ simplices.

*Head behind with rather erect hairs*, in front smooth. Labial palpi short, filiform, drooping. Tongue of moderate length, clothed with scales. Antennæ considerably shorter than the anterior wings, in the ♂ with *pilose ciliations*, in the ♀ simple, the basal joint furnished with a projecting tuft of hair. Wings with long cilia, the anterior pointed, hardly caudulate, the posterior lanceolate. Hinder tibiæ hairy. In the anterior wings the discoidal cell is not closed, the subcostal vein is obsolete for a considerable length towards the base; it sends five veins to the costa, the median emits three to the hinder margin, the subdorsal vein is simple; in the posterior wings the veins are simple.

A rather singular genus, of which only two species have occurred in this country (two or three others are known on the continent); the perfect insects sit with the head slightly raised, the tips of the wings firmly pressed against the substance on which the insect is sitting. The larvæ are leaf-miners, and remarkable for their extremely undeveloped legs, which require to be seen by the aid of a microscope; the habits of our two species exhibit considerable differences.

1. **complanella**, Hüb. Tin. 428 (1816); Treit.; Dup.; Zell.; Ratz. F. I. ii. pl. xii. f. 4; Sta.—*rufipennella*, Step.—*Müllerella*, Vill.?—*rufipennis*, Haw.?—*fulvescens*, Step.? Alis anticis luteis, margine postico late, costaque *angustissime fusciscentibus*. Exp. al.  $3\frac{1}{2}$ –5 lin.

Head, face, and palpi yellowish. Antennæ greyish-yellow. Anterior wings bright yellowish, towards the hinder margin and along the costa *fusciscent*; cilia yellowish at the apex, grey at the anal angle. Posterior wings grey, with yellowish-grey cilia.

Very common among oaks in June. The larva (according to Ratzeburg) mines in the autumn in oak-leaves, making large white blotches, within which the larva may be observed in a curved position; the mined leaves remain perfectly flat. The larva, when full-fed, spins its cocoon within the leaf, but remains unchanged till spring; there does not appear to be more than one brood in the year. (I have repeatedly met with the larvæ, but have not hitherto succeeded in rearing them.)

2. **marginea**, Haw. L. B. 556 (1829); Step.—*Emyella*, Dup. L. F. xi. pl. 309. f. 6; Zell. Alis anticis luteis, costa anguste, apicem versus latius, margineque postico *late fuscis, puncto rotundo atro* marginis postici supra angulum analem. Exp. al. 4—4½ lin.

Head fuscous, mixed with yellowish. Face and palpi yellowish. Antennæ fuscous. Anterior wings bright yellowish, with the costa narrowly *fuscous* at the base, more broadly towards the apex, the hinder margin *broadly fuscous, with a round black spot* above the anal angle; cilia at the apex ochreous, at the anal angle grey. Posterior wings fuscous, with paler cilia.

Common among brambles in May and August. The larva mines the leaves of the bramble in autumn and winter, and in July; the mines appear as whitish blotches, palest at their origin, of a cornucopia shape; they pucker the leaf a little; the larva changes to a pupa in the mine, not forming a cocoon; the pupa is extremely active.

## FAMILY XI. LITHOCOLLETIDÆ.

Capilli hirsuti. Palpi labiales filiformes, penduli. Alæ longe ciliatæ, anteriores *elongatæ, postice acuminatæ*, posteriores *linearilanceolatæ*.

Head rough. Labial palpi filiform, drooping. Wings with long cilia, the anterior *elongate, posteriorly acuminate*, the posterior *linear-lanceolate*.

This family, at present, only contains one genus.

### Genus I. LITHOCOLLETIS.

LITHOCOLLETIS, Zell. Isis, 1839, p. 216; Dup. Cat. *Tinea* p., Haw. *Argyromiges* p., Curt.; Step. *Elachista* p., Treit.; Dup. L. F. xi.; Zett. *Chrysoesthia* p., *Lithocolletis* p., et *Eucestis*, Hüb. V.

Capilli hirsuti, epistomio lævigato. Antennæ alis anterioribus vix breviores, articulo basali modice incrassato. Haustellum mediocre, nudum. Palpi labiales filiformes, penduli. Alæ longe ciliatæ, an-



teriores elongatæ, postice acuminatæ; posteriores lineari-lanceolatæ. Anteriores: vena subcostalis longe interrupta, cellula discoidalis venas duas in costam, unam in apicem, duas in marginem posticum emittit, subdorsalis simplex; posteriores: vena mediana bifida in utrumque marginem exit, subdorsalis simplex.

Head rough, the face smooth. Antennæ hardly shorter than the anterior wings, the basal joint moderately thickened, not expanded into an eye-cap. Tongue of moderate length, naked. Labial palpi filiform, drooping. Wing with long cilia, the anterior elongate, posteriorly acuminate (yet appearing from the cilia of an elliptic form); the posterior linear-lanceolate. In the anterior wings the subcostal vein has a long interruption; the discoidal cell sends two veins to the costa, one to the apex, and two to the hinder margin; the subdorsal vein is simple. In the posterior wings the median vein is bifid, terminating on each margin; the subdorsal vein is simple.

This is in all probability the most elegant genus of the *Tineina*; the graceful form of the perfect insects, the sharpness of the designs on the anterior wings, and the rich, frequently metallic lustre of the scales, impart to them a brilliancy which attracts the attention of the most superficial. Unfortunately the small size of these little gems, and the extreme similarity of many of them, have caused considerable ambiguity with regard to the descriptions of the earlier authors, so that our accurate knowledge of few of the species dates further back than 1846, when the appearance of the first volume of the '*Linnaea Entomologica*,' with Zeller's monograph of this genus, caused a complete revolution in this department of Entomological science. Elaborate as was that monograph, and immensely in advance of all that had previously been written on the subject, the impetus it gave to the study of this group has been so great, that it has already become antiquated and out of date. Von Nicelli, whose remarks on the habits of the Pomeranian species of this genus show that he is fully competent for such a task, has undertaken to write a monograph of the genus as it stands at the present time, and I believe his monograph is now ready for publication.

The perfect insects rest with their head slightly elevated (a single species (*Schreberella*) has a directly contrary habit, inclining its head to the surface on which it rests at an angle of fully 30°); the antennæ are laid back generally under the wings; the flight is gentle, or with occasional jerks. The larvæ have only fourteen feet, and mine in leaves, having no power to quit their mine, but changing therein to a pupa, and the empty pupa-skin may be found protruding through the skin of the leaf after the perfect insect has escaped. Some of the larvæ mine beneath the

upper cuticle, some beneath the under cuticle, but the larva of no species is known to mine indifferently the upper or under side of a leaf. The larva, in the process of its mine, contorts the leaf more or less, the leaf curving towards the side on which the larva is at work; the larva carpets the loosened skin with silk, and purposely pulls it so tight as to cause the loosened skin to pucker, whereby the opposite side of the leaf naturally curves. Mr. Boyd has suggested that the natural shrinkage of the silk may, without any extraneous assistance from the larva, cause the puckering of the loosened skin. Many of the larvæ have the third and fourth segments considerably enlarged. The larvæ of some species form cocoons of silk, sometimes of very fine texture; others interweave the grains of excrement into the cocoon; a few do not construct any cocoon. Most of the species are double-brooded, appearing in the perfect state in May and August, and the larvæ feeding in July and October; a few of the latter brood remain in the larva state throughout the winter, but in most of the species the pupa state is assumed before the commencement of winter, and many a withered brown leaf blown hither and thither, at the mercy of every gust, contains throughout the winter a living pupa, to appear in the following spring as one of these splendid insects.

The genus may be tabulated as follows:—

- a. Anterior wings with a hook in the cilia. Species 1–3.
- a a. Anterior wings with no hook in the cilia.
  - b. Anterior wings dark, with a white, whitish, or silvery basal streak.
    - c. The basal streak dark-margined on both sides. Species 4–9, 19, 20.
    - c c. The basal streak dark-margined only towards the costa. Species 10, 12, 17, 26.
    - c c c. The basal streak with no dark margin. Species 11, 13, 14–16, 18, 21–25.
  - b b. Anterior wings white, with dark streaks or fasciæ. Species 27–30, 41.
  - b b b. Anterior wings dark, with no defined basal streak, but with two or more pale fasciæ. Species 31–40.

1. **Roboris**, Zell. Isis, 1839, p. 217; Id. L. E. i. 174. pl. 1. f. 4. —*Roborella*, Sta.—*Roborifoliella*, Dup. Alis anticis niveis, macula parva dorsali aurco-brunnea basim versus, fascia lata obliqua a basi costæ fere ad medium dorsi, aureo-brunnea, pone medium lincis quatuor costæ, una dorsi nigris introrsum fuscescente-marginatis, puncto rotundo apice atro, caudulam ciliarum emittente. Exp. al. 4 lin.

Head white, with a few fuscous hairs. Face and palpi white. Antennæ whitish, with fuscous annulations. Anterior wings white, with a small golden-brown blotch on the inner margin near the base; an

*oblique golden-brown fascia* commences at the base of the costa, it is at first *very broad*, but gradually becomes thinner, terminating before the middle of the inner margin, on its outer side are some fuscous scales; beyond the middle of the wing are four short black lines from the costa, and a longer one from the inner margin internally margined with pale golden-brown; *at the apex is a round black spot*, from which the long black scales, which form the hook in the cilia, project; cilia white. Posterior wings grey, with whitish cilia.

Appears in May and August. The larva feeds on the under-side of oak-leaves. It has occurred at Leatherhead, Huddersfield, and Doncaster.

2. **hortella**, Fab. E. S. iii. 2. 327. 174 (1794); Haw.; Sta.—*Saportella*, Dup.; Zell. L. E. i. 177. pl. 1. f. 6; v. Nicelli.—*Kuhlweiniella*, Zell. Isis, 1839. Alis anticis albis, fasciis *tribus* angulatis, *secunda interrupta*, *ochreo-aureis* utrinque nigro-marginatis, strigulis duabus costæ ochreo-aureis, extrorsum nigro-marginatis, in striolam apicis ochreo-fuscæ decurrentibus. Exp. al. 4 lin.

Head whitish. Face and palpi white. Antennæ white, with fuscous annulations. Anterior wings white, with *three* angulated fasciæ and two costal spots, *ochreous-yellow, somewhat golden*; the first fascia is slightly angulated, externally dark margined and internally partially so; the second fascia is more angulated and *frequently interrupted*, the costal half projecting beyond the dorsal half, it is dark-margined on both sides, as is also the third fascia, which is still more angulated and the prolongation of its angle forms the apical streak, which is ochreous-golden, with only a few black scales; the two costal spots run into the apical streak and have dark margins externally; a black hinder marginal line goes round the apex of the wing; cilia white, the extremities of the costal half black, thus forming a hook. Posterior wings very pale grey, with whitish cilia.

Appears in May and August. The larva feeds in oak-leaves. It has occurred at Oxford, Shrewsbury, and near London.

3. **Amyotella**, Dup. L. F. xi. 544. pl. 309. f. 2 (1838); Zell. L. E. i. 180. pl. 1. f. 7; v. Nicelli; Sircom.—*Mülleriella*, Zell. Isis, 1839. Alis anticis croccis, strigulis *duabus* costæ, *tribus* dorsi obliquis albis, prima costæ in medio, prima secundaque dorsi utrinque fusco-marginatis, secunda tertiaque dorsi introrsum fusco-marginatis, striola apicis nigra, squamis supra eam albis ad caudulam fuscæ ciliolum propagatis. Exp. al. 4 lin.

Head saffron-yellow. Face and palpi white. Antennæ whitish, annulated with fuscous. Anterior wings bright saffron-yellow, with *two* costal and *three* dorsal streaks white; *the first costal streak is near the middle and is opposite the second dorsal streak*, it is dark-margined on both sides; the two first dorsal streaks are dark-margined on both sides, the apex of the second is considerably prolonged; the second

costal is opposite the third dorsal streak, they are dark-margined internally; in the apex of the wing is a black streak, above it are some white scales which run into the fuscous hook of the cilia; a dark hinder-marginal line runs round the apex of the wing; cilia pale ochreous. Posterior wings grey, with paler cilia.

Appears in May and August. The larva feeds in oak-leaves. It has occurred near Bristol, and near Keswick.

4. **Lantanelle**, Schr. F. B. ii. 136. 1888 (1802).—*elatella*, Zell. L. E. i. 190. pl. i. f. 12; Sta. Alis anticis *dilute croceis*, linea basali *utrinque* nigro-marginata, strigulis *quatuor* costæ, tribus dorsi introrsum fusco-marginatis, argenteo-albis, striola apicis elongata atra. Exp. al. 4 lin.

Head pale saffron. Face and palpi white. Antennæ whitish, with darker annulations. Anterior wings *shining, pale saffron*, with a basal streak, *four* costal and three dorsal streaks silvery-white; the basal streak is dark-margined towards the costa, and its hinder half is dark-margined towards the inner margin; the costal spots are *all small* and have dark margins towards the base of the wing; the first dorsal spot is the longest, it is curved, it is dark-margined internally and round its apex, which is rather prolonged as a black streak; the second dorsal spot is triangular, it is dark-margined on both sides; the apical black streak is rather long and thin, and has frequently on its upper side white scales, forming a continuation of the fourth costal spot. Posterior wings grey, with paler cilia.

Appears in May and August. The larva feeds in the underside of the leaves of *Fiburnum Lantana*; the autumnal larvæ do not change to pupæ till spring. It has occurred at Mickleham, and near Teignmouth.

5. **triguttella**, Sta. Zool. 1850, p. 2896. Alis anticis *croceis*, linea tenui basali *utrinque* fusco-marginata, strigulis *tribus* costæ, tribus dorsi, introrsum fusco-marginatis, albis, squamis fuscis disci pone medium, striola apicis nigra. Exp. al. 4 lin.

Head pale saffron. Face and palpi white. Anterior wings shining saffron, the basal streak rather slender, *dark-margined on both sides*; on the costa are *three* white streaks (*a fourth is totally wanting*), and three others are on the inner margin, are all dark-margined towards the base, the first pair most strongly; some dark scales lie on the disc beyond the middle; beyond the apex of the third costal streak commences the apical black streak; some dark scales in the cilia run round the apex of the wing. Posterior wings leaden-grey; cilia paler.

A single specimen, taken at Sanderstead in May, by Mr. Douglas, is in his collection.

6. **quinqueguttella**, Sta. Sup. Cat. p. 12 (1851). Alis anticis *croceis*, linea basali argenteo-alba, *utrinque* fusco-marginata, *strigula ad*

*costam applicata prope basin fusco-marginata, strigulis quatuor costæ, tribus dorsi, introrsum fusco-marginatis, argenteo-albis, striola apicis nigra.* Exp. al. 3 lin.

Head saffron. Face and palpi white. Antennæ fuscous, with whitish annulations. Anterior wings bright saffron, basal streak silvery-white, *dark-margined on both sides; above it along the costa is a silvery-white streak*, quite detached from the next costal spot and *with a distinct dark margin*; beyond are the ordinary four costal and three dorsal spots, all internally dark-margined, except the last costal spot, which is situated in the apex immediately above the apical black streak; below it are some black scales in the cilia reaching to the anal angle. Posterior wings grey, with paler cilia.

Taken among sallows in May and July, by Mr. Hodgkinson and Mr. C. S. Gregson.

7. **nigrescentella**, Logan, Ent. Trans. i. n. s. 182. pl. xv. f. 9 (1851). Alis anticis *fusco-nigris*, linea basali *utrinque fusco-marginata argentea*, strigulis quatuor costæ, tribus dorsi *argenteis*, prima costæ cum prima ac secunda dorsi confluenta, puncto apicis ovato nigro. Exp. al.  $4\frac{1}{2}$  lin.

Head brownish-black. Face and palpi metallic. Antennæ brownish-black, the tip white. Anterior wings *dark brown, inclining to black*; the *silvery* basal streak is *dark-margined on both sides*; on the costa are four *silvery* spots, and on the inner margin are three, none are dark-margined; the first pair of spots meeting form an angulated fascia, and the apex of the dorsal spot is continued towards the apex of the second costal spot; the apical black spot is slightly of an oval form (very nearly round). Posterior wings brownish-grey; cilia paler, striking paler at their origin.

A single specimen, taken near Morpeth in May, by Mr. Scott.

8. **irradiella**, Scott, n. sp. Alis anticis *olivaceo-fuscis*, linea basali tenui abbreviata *argentea*, strigulis tribus abbreviatis costæ, tribus dorsi (ultima parva) *argenteis*, apice atro-squamato. Exp. al. 3 lin.

Head black. Face and palpi silvery. Antennæ dark fuscous, before the apex white. Anterior wings *olivaceous-fuscous*, with a slender, short, *silvery* basal streak, and three short costal streaks and three dorsal streaks silvery; the last dorsal streak is small and inconspicuous; at the apex are a few black scales, beyond which the cilia are rather iridescent; beyond the dark hinder-marginal line the cilia are fuscous. Posterior wings dark grey, with paler cilia.

A single specimen, taken by Mr. Scott in the beginning of July, near Renfrew, amongst birches. Mr. Scott, with the view that the information to be derived from the sight of the unique specimens of this and the preceding species, might be more widely disseminated than if they remained in his own collection, has with extreme liberality placed them in mine.

9. **lautella**, Zell. L. E. i. 194. pl. 1. f. 14 (1846); Sta.; v. Nicelli. Alis anticis *rufo-aurantiis*, linea basali abbreviata *argentea*, *utrinque nigro-marginata*, strigulis quatuor costæ (ultima interdum obsoleta) duabus dorsi *argenteis*, introrsum nigro-marginatis, prima costæ, duabusque dorsi utrinque nigro-marginatis, squamis nonnullis *argenteis* supra angulum analem, striola apicis ovata nigra. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head black. Face and palpi metallic. Antennæ black, before the apex white. Anterior wings very bright *reddish-orange*, with a short *silvery* basal streak dark-margined on both sides; from the costa are four silvery streaks (the last frequently obsolete), the first is dark-margined on both sides, the others only on the side towards the base of the wing; on the inner margin are two silvery streaks, dark-margined on both sides, the first is almost perpendicular and nearly meets the first costal streak; above the anal angle are a few silvery scales; the apical black streak is somewhat oval, but not very distinct; cilia beyond the dark hinder-marginal line grey. Posterior wings dark grey, with paler cilia.

Appears in May and August. The larva feeds in oak-leaves; it forms an elongate, very fine cocoon.

10. **pomifoliella**, Zell. L. E. i. 196. pl. i. f. 15 (1846); Sta.—var. ? *Junoniella*, Sta. Alis anticis *croceis*, linea basali postice *acute terminata*, costam versus fusco-marginata, alba, strigulis quatuor costæ, tribus dorsi introrsum, prima costæ, prima secundaque dorsi utrinque fusco-marginatis, albis, striola apicis obsoleta nigra. Exp. al. 3–4 lin.

Head bright saffron-yellow. Face and palpi white. Antennæ white, annulated with fuscous. Hinder tarsi whitish, *spotted with dark fuscous*. Anterior wings bright saffron-yellow, varying to golden-brown; the basal streak is white, it gradually thickens to beyond its middle and then terminates in a point; the side towards the costa and the under-side of the apex are dark-margined; on the costa are four white streaks and on the inner margin are three, all are internally dark-margined; the first costal and two first dorsal streaks are dark-margined on both sides; beyond these are some dark scales on the disc, and at the apex of the wing is an obscure black streak. Posterior wings grey, with paler cilia.

Abundant in May and August. The larva mines the underside of the leaves of whitethorn (and apple?).

11. **Coryli**, v. Nicelli, Ent. Ztg. 1851, p. 26; Sta. Alis anticis *ochreis* vel *ochreo-brunneis*, linea basali nivea, non obscure marginata, strigulis quatuor costæ, tribus dorsi niveis introrsum fusco-marginatis, striola apicis nigra. Exp. al.  $3\frac{1}{2}$  lin.

Head dull ochreous. Face and palpi white. Antennæ white, faintly annulated with pale fuscous. Hinder tarsi white, *spotted with dark fuscous*. Anterior wings *ochreous* or ochreous-brown, with a straight snowy-white basal streak *with no dark margin*, and with four costal and

three dorsal streaks snowy-white, dark-margined towards the base of the wing; the apical black streak is rather short. Posterior wings grey, with paler cilia.

Abundant in May and August. The larva mines the *upper side* of the leaves of the nut; the large white blotches it makes are very conspicuous; when full-fed it causes the leaf to pucker very considerably, consequently, by the distortion of the leaf, the age of the larva may be known.

12. **spinicolella** (Kollar), Zell. L. E. i. 203. Anm. 1 (1846).—*Pomonella (spinicolella)*, Sta.—var.? *Pomonella (deflexella)*, Sta. Alis anticis *dilute* croceis, linea *tenui* basali alba, *costam versus* fusco-marginatis, strigulis quatuor costæ, tribus dorsi introrsum fusco-marginatis, striola apicis nigra. Exp. al. 3–3½ lin.

Head pale saffron. Face and palpi white. Antennæ white, with faintly darker annulations. Hinder tarsi white, *unspotted*. Anterior wings shining pale saffron-yellow, with a slender white basal streak dark-margined towards the costa, and with four costal and three dorsal streaks white, with dark margin (sometimes very faint) towards the base of the wing; the apical streak is ovate and blackish. Posterior wings pale grey, with paler cilia.

Common in August. The larva mines the underside of the sloc-leaves in July. The variety? *deflexella* (which differs only in having the anterior wings irrorated with pale fuscous, and the basal streak *deflected* into the first dorsal streak,) is common among sloc-bushes in May; it is probably only the other brood of *spinicolella*.

13. **Faginella** (Mann), Zell. L. E. i. 204. Anm. iii. (1846); Sta.—*fagifoliella*, Sircom.—*Pomonella*, Sta. (Zool. 1848); v. Nicelli.—var. *securiferella*, Sta.—*Mæstingella*, Müller? Alis anticis *dilute* croceis, linea basali alba *non obscure marginata*, strigulis quatuor dorsi, introrsum *late fusco-marginatis* albis, striola apicis nigra. Exp. al. 3½–4½ lin.

Head pale saffron-yellow. Face and palpi white. Antennæ white, annulated with very pale fuscous. Hinder tarsi entirely whitish, or spotted with very pale fuscous. Anterior wings *pale* saffron-yellow, with a straight, *unmargined*, white basal streak, and with four costal and three dorsal white streaks, which have distinct and *broad dark margins* towards the base of the wing; between the second pair of spots are frequently some dark scales on the disc; the black apical streak is rather oval. Posterior wings pale grey, with ochreous-grey cilia.

Abundant in May and August. The larva mines the underside of the beech-leaves in autumn and July.

14. **salicicolella**, Sircom, Zool. 1848, p. 2271; Sta.—*Capraella*, v. Nicelli. Alis anticis *dilute ochreis* vel *ochreo-brunneis*, linea basali

*tenuissima alba non obscure marginata*, strigulis quatuor costæ, tribus dorsi introrsum fusco-marginatis, albis albidisve, squamis sparsis nigris disci, puncto ovato apicis nigro. Exp. al.  $3\frac{1}{2}$ – $4\frac{1}{2}$ .

Head saffron-yellow, more or less mixed with brownish. Face and palpi white. Antennæ whitish, with darker annulations, before the apex white. Hinder tarsi whitish, sometimes spotted pale fuscous. Anterior wings *shining pale saffron-yellow*, or *ochreous-brown*, with a *very slender, unmarginated*, white or whitish basal streak; on the inner margin near the base is an *inconspicuous* white spot or streak, *which does not reach* the basal streak; on the costa are four and on the inner margin are three white or whitish streaks, all are dark-margined towards the base of the wing; the first pair of spots frequently unite and form an angulated fascia; between these and the third pair of spots are numerous black scales on the disc; at the apex is an ovate, rarely streak-formed black spot. Posterior wings pale grey, with ochreous-grey cilia.

This species is susceptible of considerable variation; it is common in May and August. The larva mines the underside of the leaves of the *sallow* in autumn and July.

15. **viminetorum**, n. sp. Alis anticis *ochreo-brunneis*, linea basali *tenuissima alba, non obscure marginata, cum apice trianguli dorsalis albi* (non obscure marginati) *confluente, fascia* angulata in medio, strigulis tribus costæ, duabus dorsi albis, puncto ovato apicis nigro. Exp. al.  $3\frac{1}{2}$ – $4\frac{1}{2}$  lin.

Head saffron-yellow, mixed with brownish. Face and palpi whitish. Antennæ whitish, with darker annulations, the apex white. Anterior wings *dull ochreous-brown*, with a *very slender, unmarginated*, white basal streak; on the inner margin near the base is an unmarginated *white triangle, the apex of which reaches to the basal streak*; in the middle is an angulated white *fascia*, slightly margined with dark scales internally; beyond are three costal and two dorsal white streaks, the first pair of which only are distinct, and internally dark-margined; at the apex is an ovate black spot. Posterior wings grey, with paler cilia.

I bred many hundreds of this from larvæ mining in the underside of the leaves of the *osier* in autumn; all the specimens thus bred, though showing some slight variation, are constant in their differences from the preceding, and I cannot but think it specifically distinct.

16. **Carpinicolella**, Sta. Sup. Cat. p. 13 (1851).—*ilicifoliella*, Sta. (Zool. 1848).—*Mespilella*, Haw. ? Step. ? Alis anticis *dilute croceis*, linea basali recta *alba non obscure marginata*, strigulis quatuor costæ, tribus dorsi albis, introrsum fusco-marginatis, *prima costæ excepta, quæ per costam basin versus producta est*. Exp. al. 4 lin.

Head pale saffron. Face and palpi white. Antennæ whitish, annulated with pale fuscous. Hinder tarsi whitish, spotted with dark



fuscous. Anterior wings *pale* saffron-yellow, with a straight white *unmarginated* basal streak, and four costal and three dorsal white streaks; all these have dark margins towards the base of the wing, *except the first costal streak, which is continued along the costa towards the base of the wing*; at the apex is a short black streak. Posterior wings pale grey, with ochreous-grey cilia.

Not uncommon in May and August. The larva mines in the upper side of the leaves of the hornbeam in autumn and July.

17. **ulmifoliella**, Hüb. Tim. 444 (1816); Treit.; Dup.; Zell. L. E. i. 210. pl. 1. f. 18; Sta.; v. Nicelli. Alis anticis *saturate* croceis, linea basali recta albida *costam versus* nigro-marginata, *fascia* angulata ante medium, strigulis tribus costæ (*tertia apicali*), duabus dorsi, introrsum nigro-marginatis, albidis, *puncto rotundo apicis atro*. Exp. al. 4 lin.

Head dark saffron or brownish. Face white, inclining to metallic. Palpi white. Antennæ fuscous, before the apex white. Anterior wings *deep saffron, inclining to brownish*, with a straight, rather short, whitish basal streak, *dark-marginated towards the costa*, with an angulated whitish *fascia*, internally dark-marginated; beyond are three costal and two dorsal whitish streaks, internally dark-marginated; *the last costal streak is immediately over the round apical black spot*. Posterior wings grey, with paler cilia.

Abundant in May and August. The larva mines the under-side of the leaves of the *birch* in autumn and July.

18. **Spinolella**, Dup. L. F. xi. 535. pl. 308. f. 8 (1838); Sta.; v. Nicelli.—*hilarella*, Zett.? Alis anticis croceis, paullulum griseo-irroratis, linea brevi basali alba *non obscure marginata*, *fascia arcuata* ante, strigulis tribus costæ, duabus dorsi pone medium, introrsum fusco-marginatis, albis, squamis nigris disci, striola apicis ovata nigra. Exp. al.  $3\frac{1}{2}$ – $4\frac{1}{2}$  lin.

Head yellowish-white. Face and palpi white. Antennæ whitish, annulated with fuscous, before the apex white. Anterior wings saffron-yellow, more or less suffused with grey, with a *short unmarginated* white basal streak, a *slightly-curved* white *fascia* before the middle, internally dark-marginated, and beyond the middle three costal and two dorsal white streaks, internally dark-marginated; between the first pair of spots are some dark scales on the disc; the apical black spot is rather small and oval. Posterior wings grey, with paler cilia.

Local; it occurs at Bristol, Huddersfield, and in the south of Scotland. Common in May and August. The larva mines in the leaves of the *sallow* in autumn and July.

19. **quercifoliella** (F. v. R.), Zell. Isis, 1839, p. 217; Id. L. E. i. 218. pl. 1. f. 22; Sta.; v. Nicelli; Dup.?—*Harrisella*, var.  $\beta$ , Haw.—*Harrisella*, Step.? Alis anticis dilute croceis vel pallide ochreis, linea basali *longa, haud pallidior*e, *utrinque fusco-marginata*, strigulis

quatuor costæ, tribus dorsi, introrsum fusco-marginatis, albidis, puncto apicis rotundo atro. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head pale saffron-yellow. Face and palpi silvery-white. Antennæ yellowish, annulated with fuscous. Anterior wings pale saffron-yellow or very pale ochreous, *with a basal line of the ground-colour, dark-margined on both sides, terminating in the fold beyond the middle*, and with four costal and three dorsal streaks paler, internally with dark margins; the first costal streak is dark-margined on both sides; between the second and third pairs of streaks are some dark scales on the disc; the black apical spot is round. Posterior wings grey, with paler cilia.

Abundant in May and August. The larva mines the underside of the leaves of the oak in autumn and July.

20. **Messaniella**, Zell. L. E. i. 221. pl. 1. f. 23 (1846); Sta. Alis anticis dilute croceis, linea basali *haud pallidior*, *utrinque fusco-marginata*, strigulis quatuor costæ, tribus dorsi (*prima longa, apice ultra secundam producta*), introrsum fusco-marginatis albidis, puncto apicis rotundo atro. Exp. al.  $4\frac{1}{2}$  lin.

Head saffron-yellow. Face and palpi whitish. Antennæ whitish, annulated with fuscous. Anterior wings saffron-yellow, with a straight basal line *hardly paler than the ground-colour, dark-margined on both sides*, terminating *before the middle*, and with four costal and three dorsal streaks yellowish-white; the first costal is dark-margined on both sides, the others only internally; *the first dorsal streak is very long and curved, its apex reaching over the apex of the second dorsal spot*, its apical half is dark-margined on both sides, the other spots are only dark-margined internally; the third dorsal spot is very indistinct; the black apical spot is round. Posterior wings grey, with paler cilia.

Very abundant in the south of England, appearing in May, August, and November. The larva mines by preference the underside of the leaves of the evergreen oak, during the winter and spring, and in July and October, but it also feeds on oak, horn-beam, chestnut, etc.

21. **corylifoliella**, Haw. L. B. 580 (1829); Step.; Sta.; Hüb. ? —*ulmifoliella*, Step. ? Alis anticis *ochreo-rufis*, linea *tenuissima* basali, strigulis oppositis obliquis tenuissimis in medio, strigula parva dorsi prope angulum analem, strigulaque minore costæ apicem versus, *albidis*, striola apicis cinerea. Exp. al.  $4\frac{1}{2}$  lin.

Head reddish-ochreous. Face and palpi whitish. Antennæ whitish, annulated with fuscous. Hind tarsi whitish, spotted with dark fuscous. Anterior wings *reddish-ochreous*, with a *very slender* unmarginated *whitish* basal streak; in the middle are two *very slender obliquely-placed* opposite *whitish* streaks; *both are preceded by a few dark scales*, which are continued along the margins towards the base of the wing; beyond the streak are two (sometimes united) dark *grey* patches, one on the costa, the other beneath the apex of the dorsal streak, this is frequently continued towards the apex of the wing; on the inner margin near the

anal angle is a small whitish spot, preceded by a few dark scales, and on the costa near the apex is a still smaller whitish spot. Posterior wings dark grey, with paler cilia.

Common in the south of England, in May and August. The larva mines the upper side of the leaves of the hawthorn, forming of it one large blister, and by the contraction of the upper side, when full-fed, completely folding the leaf; it may be met with in autumn, and in July.

22. **Caledoniella**, Sta. Sup. Cat. p. 12 (1851). Alis anticis *ochraceo-rufis*, *postice nigro-squamatis*, linea tenuissima basali, strigulis oppositis obliquis tenuissimis in medio, strigula parva dorsi ad angulum analem, strigulaque minore costæ apicem versus *albis*, striola apicis nigra. Exp. al.  $4\frac{1}{2}$  lin.

Head reddish-ochreous. Face and palpi white. Antennæ whitish, with darker annulations. Hinder tarsi whitish, unspotted. Anterior wings *reddish-ochreous*, *posteriorly much suffused with black scales*, with a *very slender unmarginated white* basal streak; in the middle are two *very slender obliquely-placed* opposite *white* streaks, *internally broadly margined with black scales*, externally the black scales form an angulated fascia, from the angle of which produced the apical streak is formed; there is a small white spot at the anal angle, and another immediately above the apical streak. Posterior wings grey, with paler cilia.

Has occurred, though sparingly, in the north of England and south of Scotland, in May and June, among oaks and honey-suckle.

23. **viminiella**, Sircom, Zool. 1848, p. 2271; Sta. Alis anticis *obscure ochreis*, linea tenui basali, strigulis quatuor costæ, tribus dorsi *dilutioribus*, secunda costæ, secundaque dorsi introrsum fusco-marginatis, tertia quartaque costæ, tertiaque dorsi obsoletissimis, squamis nigris disci in striolam nigram apicis exeuntibus. Exp. al. 4 lin.

Head ochreous. Face and palpi white. Antennæ whitish, annulated with pale fuscous. Hinder tarsi whitish, with faint fuscous spots. Anterior wings *dull-ochreous*, with a slender basal streak, four costal and three dorsal streaks *very pale ochreous*; the second pair of streaks are internally dark-margined, and some dark scales at their apices are continued to the apical black streak; the two last costal streaks and the third dorsal streak are frequently very indistinct. Posterior wings grey, with ochreous-grey cilia.

Rare near London; common in the west of England (Bristol and Devonshire), in May and August. The larva mines the underside of the leaves of the willow, in autumn and July.

24. **Scopariella** (Tischer), Zell. L. E. i. 227. pl. 1. f. 26 (1846); Sta. Alis anticis *obscure croccis*, linea tenui basali, *sæpe cum strigula prima costæ conjuncta*, strigulis quatuor costæ, tribus dorsi *albis*, striola parva apicis nigra. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head whitish, mixed with ochreous. Face and palpi white. Antennæ with pale fuscous annulations. Anterior wings *dull* saffron-yellow, with a slender basal streak, four costal and three dorsal streaks, white and unmargined; the basal streak is at first straight, but afterwards turns towards the costa, and frequently unites with the first costal streak, which is obliquely placed and rather long, frequently uniting with the first dorsal streak; between the apices of the second pair of streaks are some dark scales, and a small black streak is in the apex of the wing; cilia pale ochreous and whitish, with no dark hinder-marginal line. Posterior wings grey, with paler cilia.

Occurs among broom in June and July. I have met with it at Dartford Heath, and near Airthrey.

25. **ulicicolella** (Vaughan), Sta. Sup. Cat. p. 12 (1851). *Alis anticis nitidis*, croceis, linea tenui basali, strigulis quatuor costæ, tribus dorsi nitidis albis, striola parva apicis nigra. Exp. al.  $3\frac{1}{2}$  lin.

Head saffron-yellow. Face and palpi white. Antennæ dark fuscous, with paler annulations, before the apex white. Anterior wings *shining* saffron-yellow, with a basal streak, four costal and three dorsal streaks *shining* white and unmargined; the basal streak is slender, and runs near the costa, and almost parallel to it; the costal streaks are *all short*; the first dorsal streak is long, obliquely placed, reaching beyond the middle of the wing; between the third pair of spots are a few dark scales; at the apex is a small black streak; a dark hinder marginal line goes round the apex of the wing; cilia grey. Posterior wings grey, with ochreous-grey cilia.

Discovered by Mr. Vaughan among furze-bushes, near Bristol, at the end of June. I have since found it among furze-bushes on Dartford Heath, in July.

26. **alnifoliella**, Hüb. Tin. 193 (1801); Dup.; Sta.—*Alniella*, Zell. L. E. i. 229. pl. 1. f. 27; v. Nicelli.—*Cramerella*, Fab. (G. I.)? Dup.? *Alis anticis albidis fuscisve*, linea basali *latiuscula* alba, costam versus fusco-marginata, strigulis quatuor costæ, tribus dorsi albis, introrsum fusco-marginatis, puncto rotundo apicis atro. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head whitish or dark brown. Face and palpi white. Antennæ whitish, with darker annulations. Anterior wings varying in colour from whitish to dark fuscous, with a basal streak, four costal and three dorsal streaks white; the basal streak is rather broad, gradually pointed, nearer to the costa than to the inner margin, towards the costa it is dark-margined, the costal and dorsal streaks are all dark-margined towards the base of the wing; the first costal streak is dark-margined on both sides, it is long, reaching more than half across the wing; the first dorsal streak is very broad at its base, not reaching as far across the wing as the second dorsal streak; the apical spot is round and black. Posterior wings grey, with paler cilia.

Abundant in May and August. The larva mines the under-

side of the leaves of alders in autumn and July; it constructs a firm cocoon of an ochreous colour.

27. **Heegeriella**, Zell. L. E. i. 232. pl. 1. f. 28 (1846); Sta.; v. Nicelli.—*tenella*, Sta. Zool. 1848, p. 2152. Alis anticis albis, *linea basali* fusca, lincis *quatuor* costæ, *tribus* dorsi fuscis, introrsum fusciscente marginatis, *puncto ovato* apicis atro. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, palpi, and antennæ white. Anterior wings white, with a brownish-black *basal line*, and *four* similarly coloured lines from the costa, and *three* from the inner margin, all more or less broadly bordered internally with pale fuscous, their exterior margins being white; the black apical *spot* is *oval*. Posterior wings pale grey, with whitish cilia.

Not uncommon, appearing in May and August. The larva mines in the leaves of the oak in autumn and July.

28. **Cramerella**, Fab. E. S. iii. 2. 327. 173 (1794); Haw.; Step.; Zell.; Sta.; v. Nicelli. Alis anticis albidis, lincis *tribus* costæ, *duabus* dorsi fusco-nigris, introrsum fusciscente-marginatis, *puncto rotundo* apicis atro. Exp. al.  $3\frac{1}{2}$ – $4\frac{1}{2}$  lin.

Head, face, palpi, and antennæ white. Anterior wings pearly-white, with *three* dark fuscous lines from the costa and *two* from the inner margin, all internally bordered with pale fuscous, sometimes very broadly, thus making the apical half of the wing pale fuscous, with merely white spots on the exterior margins of these lines; the black apical *spot* is *round*. Posterior wings grey, with paler cilia.

Very abundant in May and August. The larva mines the underside of the leaves of the oak in autumn and July; owing to the number of the oak-feeding species, the individual mines of each have not yet been sufficiently distinguished. Looking at the infinite variety in every department of nature, it is probable that the mine of each species has some distinctive peculiarity.

29. **tenella**, Zell. L. E. i. 236. pl. 1. f. 30 (1846); Sta. Alis anticis albis, strigulis *quatuor* costæ, *tribus* dorsi *ochraceo-flavidis*, extrorsum fusco-marginatis, *linea* apicis postice incrassata atra. Exp. al.  $3\frac{1}{2}$  lin.

Head whitish. Face and palpi white. Antennæ whitish, annulated with fuscous. Anterior wings white or whitish, with *four* *yellowish* streaks from the costa, and *three* from the inner margin, all are externally dark-margined; at the apex is a short black *streak*, internally pointed, externally rounded; above and below it the wing is entirely ochreous. Posterior wings pale grey, with paler cilia.

Not scarce in May and August. The larva mines the underside of the leaves of the hornbeam in autumn and July.

30. **sylvella**, Haw. L. B. 579 (1829); Step.; Sta.—*acerifoliella*, Zell. L. E. i. 239. pl. 1. f. 32, 33.—*acernella*, Dup. Alis anticis albis

*strigis duabus* fuscis, *fasciis duabus ochraceis* angulatis fusco-marginatis, secunda postice cum *tertia recta* cohærente, maculis parvis ochraceo-fuscis, duabus costæ, una dorsi striola apicis nigra. Exp. al. 3-4 lin.

Head whitish. Face and palpi white. Antennæ whitish, annulated with dark fuscous. Anterior wings white; at the extreme base are one or two dark fuscous spots, beyond are *two transverse* dark fuscous streaks; a little before the middle is an angulated *ochreous-brown* fascia, followed by a *second* more acutely angulated, frequently with a projecting tooth towards the previous fascia, both these are dark-margined on both sides; meeting the angle of the second fascia is a *straight*, rather oblique *third fascia*, less distinctly dark-margined; beyond are two small ochreous-brown spots on the costa, and one on the inner margin; the apical black streak is long and narrow. Posterior wings grey, with paler cilia.

Common in May and August. The larva mines the underside of the leaves of the maple in autumn and July; it is almost invariably at the edge of the leaf.

31. **emberizæpennella**, Bouché, Natur. 132 (1834); Zell. L. E. i. 241. pl. 1. f. 34; Sta.; v. Nicelli; Dougl. Ent. Trans. ii. n. s. 122. pl. 13. f. 3; Dup.? Alis anticis croceis, *linea abbreviata basali albida*, fasciis duabus, priore arcuata, secunda angulata, albidis, introrsum nigro-marginatis, strigulis *duabus* costæ, *tribus* dorsi albidis, prima costæ primæque dorsi introrsum nigro-marginatis, squamis inter eas nonnullis nigris disci apicem versus. Exp. al. 4-5 lin.

Head ochreous-saffron. Face and palpi white. Antennæ whitish, with darker annulations. Anterior wings saffron-yellow, with a *very short, unmarginated, whitish basal streak*; immediately beyond it is a slightly curved whitish fascia, and in the middle is an angulated whitish fascia, both are internally dark-margined; beyond are *two* costal, and *three* dorsal whitish streaks, the first pair are internally dark-margined, and between them are some black scales on the disc continued towards the apex. Posterior wings grey, with ochreous cilia.

Not scarce in the larva state; the perfect insect is less frequently met with. It appears in May and August; the larva mines the underside of the leaves of the honeysuckle, making its mine nearly as large as the leaf, which it does *not* contort at a right angle laterally.

32. **Frölichella**, Zell. Isis, 1839, p. 218; Id. L. E. i. 243. pl. 1. f. 35; v. Nicelli; Sta. Zool. 1851; Dup.? Alis anticis *laticioribus, saturate croceis* (basi pallidiore), fasciis tribus argenteo-flavidis (prima secundæque fere rectis, tertia angulata c maculis duabus oppositis composita), strigulis duabus costæ, una dorsi introrsum fusco-marginatis, striola apicis *obscura*. Exp. al. 4½ lin.

Head reddish-orange. Face and palpi white. Antennæ dark brown, with paler annulations, the tip whitish. Anterior wings *rather broad*,

*reddish-orange* (the extreme base paler), with three yellowish-silvery fasciæ; the first slightly curved, the second nearly straight, the third distinctly angulated, composed of two opposite spots, between the apices of which are some dark scales, all these are dark-margined towards the base of the wing, and their dark margins fade gradually into the ground-colour; beyond are two small silvery streaks on the costa and one at the anal angle; *the dark apical streak is not collected into a regular form*. Posterior wings grey, with paler cilia.

Hitherto very scarce in this country; I once took a specimen near York, among alders in May. The larva (according to v. Nicelli) mines the underside of the leaves of alders.

33. **Dunningiella**, Sta. Ent. Ztg. 1852, p. 88.—*Frölichella*, Sta. Zool. 1848. Alis anticis *angustulis, rufo-brunneis*, fasciis duabus argenteo-flavidis fere rectis, strigulis *tribus* costæ, *duabus* dorsi argenteo-flavidis, introrsum fusco-marginatis, *striola* apicis *nigra*. Exp. al. 4 lin.

Head dark reddish-brown. Face and palpi white. Antennæ dark brown, the tip whitish. Anterior wings *narrow, dark reddish-brown* (the extreme base paler), with two slightly curved fasciæ, *three* costal and *two* dorsal streaks silvery, yet rather of a yellowish tinge; all these markings are dark-margined on the side towards the base; the first costal streak is rather anterior to the first dorsal streak, hence they have not so much the appearance of an angulated fascia as in *Frölichella*; the apical black streak is *oval and more collected into a regular form* than in *Frölichella*. Posterior wings grey, with paler cilia.

Appears in May and August; occurring in the vicinity of oaks and nut-bushes.

34. **Nicellii** (Zell.), Sta. Zool. 1851, App. clxxii.—*tristigella*, v. Nicelli.—*Avellanella*, Schr.? Alis anticis *nitidis croceis*, fasciis duabus parum arcuatis, strigulis *tribus* costæ, *duabus* dorsi, argenteo-albidis, introrsum fusco-marginatis, *striola* apicis *elongato-ovato* atro. Exp. al.  $3\frac{1}{2}$  lin.

Head bright saffron. Face and palpi white. Antennæ whitish, annulated with fuscous nearly to the tip. Anterior wings *shining saffron*, with two slightly curved and one angulated silvery-whitish fasciæ, internally narrowly margined with dark fuscous; before the apex are some black scales forming nearly an *elongate-oval* streak, above them are two short silvery-whitish streaks from the costa, and beneath is a smaller one from the anal angle. Posterior wings grey, with greyish-ochreous cilia.

Hitherto scarce; appears in May and August. The larva mines the underside of the leaves of the nut in autumn and July. The larvæ have been found by Mr. Wilkinson near Hackney, and the perfect insect bred by him.

35. **Stettinensis**, v. Nicelli, Ent. Ztg. 1852, p. 219. Alis anticis

nitidis saturate rufo-aurantiis, fasciis duabus *vix angulatis* ante, strigulis tribus costæ, duabus dorsi pone medium, luteo-argenteis, introrsum fusco-marginatis, *puncto apicis rotundo atro*. Exp. al. 3-3½ lin.

Head dark fuscous. Face and palpi silvery-grey. Antennæ dark fuscous, the tip whitish. Anterior wings shining, *deep reddish-orange*, towards the base rather obscured with fuscous, with two yellowish-silvery slightly-angulated fasciæ before the middle, internally dark-margined, and beyond the middle with *three* yellowish silvery streaks *from the costa*, and two from the inner margin, the last on each margin is very minute, the others are dark-margined towards the base of the wing; in the apex is a *round black spot*. Posterior wings grey, with paler cilia.

Hitherto scarce; appears in May and August. The larva (detected last July by Mr. Boyd, and found in the autumn by Mr. Wilkinson) mines the *upper side* of the leaves of the alder; the mine is rather small, and placed exactly along a rib (not as usually between two ribs).

36. **Klemannella**, Fab. S. I. ii. 509 (1781); Haw.; Step.; Hüb.? —*Kleemannella*, Zell. L. E. i. 244. pl. i. f. 36; v. Nicelli. Alis anticis saturate fuscis, fasciis duabus fere rectis ante, strigulis *duabus costæ*, duabus dorsi pone medium, luteo-argenteis, introrsum fusco-marginatis, *puncto apicis rotundo atro*. Exp. al. 2½-3 lin.

Head dark fuscous. Face and palpi silvery-grey. Antennæ deep fuscous, the tip whitish. Anterior wings shining dark fuscous, with two yellowish-silvery nearly straight fasciæ before the middle, internally dark-margined, and beyond the middle with *two costal* and two dorsal streaks, yellowish-silvery and dark-margined towards the base of the wing; the second dorsal streak is very small and indistinct; in the apex of the wing is a *round black spot*. Posterior wings grey, with paler cilia.

Mr. Hodgkinson has three specimens decidedly referable to this species; they were taken in company with *Stettinensis*. The larva feeds (according to v. Nicelli) in the *underside* of alder-leaves, its mine resembling that of *alnifoliella*.

37. **Schreberella**, Fab. S. I. ii. 304. 86 (1781); Haw.; Step.; Sta.; Dup.? —*Kleemannella*, Panzer.—*ulminella*, Zell. L. E. i. 246. pl. 1. f. 37; v. Nicelli. Alis anticis rufo-aurantiis, basi obscuriore, fasciis duabus argenteis, introrsum, *strigulaque postica costæ utrinque nigro-marginatis*, *strigula dorsi argentea usque ad striolam apicis argenteo-fuscam producta*. Exp. al. 3 lin.

Head black. Face and palpi metallic. Antennæ black, the tip white. Anterior wings rich reddish-orange, at the base almost black; an oblique and slightly-curved fascia before the middle, and an almost straight fascia in the middle are silvery, and have dark margins towards the base of the wing; on the costa at the commencement of the cilia is a *silvery-white streak*, margined on both sides with black scales;



opposite to it on the inner margin is a small silvery streak, terminating in a metallic streak, which runs to the apex of the wings. Posterior wings grey, with paler cilia.

Appears in May and August, but rarely met with in the perfect state. The larva is excessively abundant, mining the under side of the leaves of the elm in autumn and in July; it forms a bluish-green cocoon.

38. **tristrigella**, Haw. L. B. 576 (1829); Step.; Sta.—var. *strigifasciella*, Sta. Alis anticis ochreo-vel brunneo-rufis, fasciis tribus albidis introrsum fusco-marginatis, duabus prioribus fere rectis, tertia angulata, ex angulo strigulam albidam costam versus emittente, squamis nonnullis nigris infra strigulam. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head reddish-ochreous. Face and palpi white. Antennæ whitish, annulated with fuscous, the tip white. Anterior wings reddish-ochreous, inclining to brownish; in the middle of the base is a small unmarginated yellowish spot, then follow three whitish fasciæ, all with dark margins internally, gradually shading off to the ground-colour, the two first are nearly straight, the third is angulated, and from its angle a whitish streak runs into the costa at the apex; beneath this streak lie the apical black scales. Posterior wings grey, with paler cilia.

Not uncommon in May and August. It has been bred by Mr. Grant and Mr. Dunning, from larvæ found in elm-leaves in autumn, and not distinguished at the time from the larvæ of *Schreberella*. I believe I have bred it both from elm and hawthorn!

39. **trifasciella**, Haw. L. B. 576 (1829); Step.; Sta.; Dougl. Ent. Trans. ii. n. s. 120. pl. 13. f. 1.—*alnifoliella*, Step.—*Heydenii*, Zell. L. E. i. 247. pl. 1. f. 38. Alis anticis rufo-ochreis, fasciis tribus, secunda tertiaque angulatis, albidis, introrsum (ad costam latius) nigro marginatis, strigula albida costæ apicem versus, strigula nigra ad angulum analem, striola parva apicis nigra. Exp. al. 4 lin.

Head reddish-ochreous. Face and palpi whitish. Antennæ whitish, annulated with fuscous. Anterior wings reddish-ochreous, with three slender whitish fasciæ, bordered with black towards the base of the wing, most broadly on the costa; the first fascia is only slightly curved, the second is angulated above the middle, the third is angulated and frequently interrupted in the middle, whence some black scales are continued to the anal angle; on the costa before the apex is a short whitish streak, preceded by a few black scales; below it are the black scales of the apex of the wing. Posterior wings grey, with paler cilia.

Common generally, but very abundant in Devonshire; appears in May, August, and November. The larva feeds in April, July, and autumn, in the under side of the leaves of the honeysuckle; its mine is rather small, and it twists the leaf at a right angle.

40. **Scabiosella**, Dougl. Ent. Trans. ii. n. s. 121. pl. 13. f. 2. Alis anticis nitidis cupreo-brunneis, linea basali brevi tenui alba, fasciis

duabus, secunda angulata, *albis nitidis*, introrsum (ad costam latius) nigro-marginatis, strigulis duabus costæ, una dorsi (fere cum prima costali coherente) albis, introrsum nigro-marginatis, strigula nigra ad angulum analem, striola apicis nigra. Exp. al.  $3\frac{1}{2}$ –4 lin.

Head coppery-brown. Face silvery-grey. Palpi silvery-white. Antennæ dark fuscous, with paler annulations. Anterior wings *shining coppery-brown, with a very short and narrow unmarginated white basal streak*, and with two *shining white fasciæ*, the first nearly straight, the second angulated above the middle, both are internally margined with black scales, most broadly on the costa; beyond are two white costal streaks and one dorsal streak, which almost unites with the first costal streak, they are dark-margined internally, and between them lie some black scales, which are extended towards the anal angle; at the apex of the wing are some black scales. Posterior wings grey, with paler cilia.

Appears at the end of May and end of August; has occurred on the old tram-road beyond Croydon, and at Headley Lane. The larva mines the underside of the radical leaves of *Scabiosa columbaria* during the winter and spring, and at the end of July and beginning of August.

41. **comparella** (F. v. R.), Zell. L. E. i. 257. pl. 1. f. 42; Sta.; Dup.? Alis anticis albis fusco-irroratis, *strigulis obliquis costæ tribus ochreo-fuscis, cum strigulis tribus dorsi ochreo-fuscis alternantibus*, duabus posticis dorsi, costæque extrorsum nigro-marginatis, *striola apicis nigra*. Exp. al. 4 lin.

Head whitish. Face and palpi white. Antennæ whitish, annulated with fuscous. Anterior wings white, irrorated with numerous fuscous atoms, sometimes causing the ground-colour to appear pale fuscous; on the costa are *three short oblique ochreous-brown streaks* equidistant and parallel, and alternating the three similar smaller streaks on the inner margin; the two last of each are externally dark-margined; *at the apex is a black streak*, above which are two small ochreous-brown spots on the costa. Posterior wings grey, with paler cilia.

Not common; has occurred in May and August among white poplars, in several localities round London.

## FAMILY XII. LYONETIDÆ.

Antennæ *dimidio alarum anteriorum longiores, conchula basali instructæ.*

Capilli plerisque lævigati. Palpi labiales breves, penduli, vel nulli.

Alæ angustæ, anteriores sæpe caudulatæ, posteriores lanceolatæ.

Antennæ *longer than the half of the anterior wings; the basal joint expanded into an eye-cap.* Head mostly smooth (*Bucculatrix* is the only genus with a really rough head). Labial palpi short, drooping, or

entirely wanting. Wing narrow, the anterior often caudate, the posterior lanceolate.

The insects of this family are mostly rather sluggish; *Bucculatrix* shows more activity than any of the other genera. They may frequently be observed at rest on palings, trunks of trees, etc., and when disturbed generally content themselves with a single sudden movement to a fresh place of rest; even when on the wing their movements are slow. The larvæ, as far as known, are all miners; but in *Bucculatrix* it is only the young larva that mines. The larvæ, when full-fed, quit the mine (excepting in *Phyllocnistis*), and form a silken cocoon, at some convenient place.

This family comprises only five genera, which may be arranged thus:—

*a.* Antennæ as long as the anterior wings. 1. LYONETIA.

*a a.* Antennæ shorter than the anterior wings.

*b.* Head quite smooth.

*c.* Labial palpi filiform. 2. PHYLLOCNISTIS.

*c c.* Labial palpi none. 3. CEMIOSTOMA.

*b b.* Head with a tuft on the crown.

*d.* Labial palpi filiform. 4. OPOSTEGA.

*d d.* Labial palpi none. 5. BUCCULATRIX.

### Genus I. LYONETIA.

LYONETIA, Hüb. V. 423 (1816); Zell. L. E. iii. *Argyromiges* p., Curt.; Step. ? *Elachista* p., Treit.; Dup. L. F. xi. *Lyonetia* p., Zell. Isis, 1839; Dup. Cat.

Capilli squamaeci, appressi, occipitales tenues suberecti. Antennæ *alarum longitudine*, tenues, conchula basali mediocri. Palpi labiales breves, penduli. Alæ angustæ, anteriores *caudatæ*, posteriores setacæ; anteriores: cellula discoidalis elongata, tenuis, acuminata, postice quinque ramos emittit, vena subdorsalis in basi *furcata*; posteriores: venæ subcostalis ac mediana non cum marginibus coalescentes.

Head smooth, with appressed scales, at the back with slender slightly erect scales. Antennæ *as long as the anterior wings*, slender, with a moderate-sized basal eye-cap. Labial palpi short, drooping. Wings narrow, the anterior *caudate*, the posterior setaceous. In the anterior wings the elongate, slender, pointed discoidal cell emits five veins posteriorly; the subdorsal vein is *furcate* at the base; in the posterior wings the subcostal and median veins speedily become confluent with the margins.

The insects of this genus have, from the elongate anterior wings and long antennæ, some resemblance with the *Gracilarie*; but their different position when at rest completely destroys the

similarity. We have only two British species. Of one, *Clerckella*, the larva has been observed; it mines in the leaves of apple (and, according to Curtis, elm); it has sixteen legs; it quits the leaf when full-fed and spins a silken cocoon, which it suspends in a horizontal position by silken threads.

1. **Clerckella**, Linn. S. N. (10), 542. 299 (1758); Treit.; Dup.; Zell.; Sta.—*cerasifoliella*, Hüb. Tin. 190.—*Malella*, Schr.—*autumnella*, Curt. B. E. fo. 284; Step.—*nivella*, Step.—var. *æreella*, Treit.—*semi-aurella*, Step.—*Fonscolombella*, Dup. Alis anticis albis vel albidis, vel æneis, macula disci pone medium longitudinali fusca, striolis costæ posticis fuscis in maculam fuscam ante apicem decurrentibus, puncto apicis atro. Exp. al. 4 lin.

Head white or whitish. Face and palpi white. Antennæ fuscous; the basal joint white. Anterior wings white; beyond the middle is a longitudinal fuscous blotch on the disc, beyond which is a narrow fuscous fascia, followed by three short fuscous costal streaks, which unite with a fuscous blotch; at the apex of the wing is a deep black spot, from which two short fuscous streaks diverge into the grey cilia. The wings are sometimes entirely of a deep bronzy-fuscous, when, except the apical spot and costal streaks, no markings are apparent, and there are various intermediate varieties. Posterior wings grey, with grey cilia.

Not uncommon in many places; appearing in June and August, and hybernated specimens in the spring. The larva makes long tortuous flat mines in the leaves of apple-trees in July, September, and October.

2. **padifoliella**, Sta. Zool. 1848, p. 2160; Hüb.? Treit.? Bouché? —*acerfoliella*, Curt.—*albella*, Evers.? Alis anticis niveis, villa lata costali fusca, dorsum versus sinuata et saturate fusca, striga obliqua pone medium dorsi apicem versus producta saturate fusca, puncto apicis atro caudulam emittente. Exp. al.  $4\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ fuscous; the basal joint white. Anterior wings snowy-white, along the costa broadly fuscous; this fuscous streak is, towards the inner margin, sinuated, and is here very dark fuscous, much darker than on the costa; beyond the middle of the inner margin is a dark fuscous streak, which runs obliquely towards the apex of the wing; at the anal angle is a small dark fuscous patch; at the extreme apex is a deep black spot; costal cilia whitish, with four short fuscous streaks, the last of which is also continued through the cilia of the hinder margin; there is a dark fuscous arch round the apical black spot, whence a dark fuscous hook also arises. Posterior wings grey, with paler cilia.

This elegant little species has only hitherto occurred among maple, at Whittlebury Forest, in September and October.

Genus II. **PHYLLOCNISTIS.**

PHYLLOCNISTIS, Zell. L. E. iii. 264 (1848). *Opostega* p., Zell. Isis, 1839; Dup.

*Capilli levigati.* Antennæ alis anterioribus breviores, conchula parva instructæ. *Palpi* labiales penduli, *filiformes*. Alæ anteriores caudatæ, posteriores lanceolato-lineares; anteriores: cellula discoidalis acuta venulas tres in costam, unam in apicem, unam in marginem posticum emittit; vena subdorsalis simplex; posteriores: vena mediana dorso proxima venulas tres emittit.

*Head smooth.* Antennæ shorter than the anterior wings, with a small eye-cap. Labial *palpi* drooping, *filiform*. Anterior wings caudate, the posterior linear-lanceolate. In the anterior wings the acute discoidal cell emits three veins to the costa, one to the apex, one to the hinder margin; the subdorsal vein is simple; in the posterior wings the median vein which runs near the inner margin emits three veins.

This genus resembles the preceding in the habit of the perfect insect; but the larva (according to Zeller) is apod, and does not quit the mine, but forms its cocoon within the leaf. Only two very closely allied species are known.

1. **suffusella**, Zell. Isis, 1847, p. 894; Id. L. E.; iii. 266. ii. pl. 2. f. 32; Sta. Alis anticis latiusculis albis, *nebula* fusca disci pone medium, striolis quatuor costæ, duabus dorsi fuscis, puncto apicis atro. Exp. al.  $3\frac{1}{2}$  lin.

Head, face, and palpi white. Antennæ pale fuscous; basal joint white. Anterior wings white, with a fuscous *blotch* on the disc beyond the middle, and above it on the costa a short fuscous streak obliquely placed, and beyond are three other short streaks, nearly straight, the first of which unites with one from the inner margin, forming with it a slightly angulated transverse line; at the apex is a deep black spot, from which three fuscous streaks radiate in the white cilia, and below it is a fuscous hinder-marginal line. At the base of the wing on the inner margin is sometimes a fuscous blotch, and the entire wing is frequently more or less suffused with pale fuscous. Posterior wings grey, with whitish cilia.

Hitherto scarce; appears in July and autumn, hibernated specimens occurring in spring; the larva mines in great blotches the leaves of poplars in June and August.

2. **saligna**, Zell. L. E. iii. 270 (1848); Sta.—*cerasifoliella*, Sta. Zool. 1848.—*unipunctella*, Step.? Alis anticis angustulis albis, *linea geminata ex basi ultra medium producta*, maculam fuscam includente, striolis quatuor costæ, duabus dorsi fuscis, puncto apicis atro. Exp. al. 3 lin.

Head whitish. Face and palpi white. Antennæ pale fuscous; the basal joint white. Anterior wings white, *with two somewhat indistinct fuscous lines from the base to beyond the middle*, including between them posteriorly a fuscous blotch; a smaller fuscous blotch lies at the base of the inner margin; beyond the middle is an angulated fuscous streak from the costa which reaches only to the fold, beyond it is another less angulated fuscous streak which reaches to the inner margin; beyond this are two other short costal streaks; at the apex of the wing is a black spot, from which three fuscous streaks radiate in the white cilia, and below it is a fuscous hinder-marginal line; the apical portion of the wing is frequently suffused with pale fuscous. Posterior wings whitish, with white cilia.

Hitherto scarce; appears in July and autumn, hybernated specimens occurring in the spring. The larva feeds in June, August, and September, in the underside of smooth-leaved willows (principally on *Salix helix*), making a large blotch.

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### Genus III. **CEMIOSTOMA.**

**CEMIOSTOMA**, Zell. L. E. iii. 272 (1848). *Leucoptera* p., Hüb. *Argyromiges* p., Step. *Opostega* p., Zell. Isis, 1839; Dup.

*Capilli squamacei, appressi.* Antennæ alis anterioribus breviores, conchula basali mediocri. *Palpi nulli.* Alæ anteriores caudulatæ, posteriores angustæ lanceolatæ; anteriores: cellula discoidalis venas duas in costam emittit, vena mediana in marginem posticum excurrit, vena subdorsalis simplex; posteriores: vena mediana in tres ramos divisa.

*Head smooth, with appressed scales.* Antennæ shorter than the anterior wings, the basal joint forming a moderate-sized eye-cap. *Palpi none.* Anterior wings caudulate, the posterior narrow, lanceolate. In the anterior wings the discoidal cell emits two veins to the costa; the median vein runs into the hinder margin; the subdorsal vein is simple. In the posterior wings the median vein divides into three branches.

*Scitella* differs from the characters above laid down, in having the slender scales at the back of the head erect, and in the anterior wings the discoidal cell emits a furcate vein to the costa, a simple one before the apex, and three (two of them obsolete) to the hinder margin, and in the posterior wings the median vein has two branches obsolete.

The insects of this genus, of which very few are at present known, and we have only three British species, are remarkable for their beauty. The radiating dark lines in the cilia are more developed in this than in the preceding genus. The larva are

leaf-miners, forming flat blotches in the leaves; that of *C. spartifoliella* however has a different habit, mining under the bark of the stems of broom.

The genus may be thus divided:—

*a.* Anterior wings white. Species 1, 2.

*a a.* Anterior wings leaden-grey. Species 3.

The first two species are so similar in the perfect state as to be hardly distinguishable; (another white species frequenting aspens, and a leaden-grey species frequenting *Hypericum*, occur on the continent.)

1. **spartifoliella**, Hüb. Tin. 335 (1816); Step.; Dup.; Zell.; Sta.—*punctaurella*, Haw.—*Harrisella*, Linn.? Alis anticis albis, macula costæ pone medium dilute flava fusco-marginata, macula altera costæ apicem versus *lateribus convergentibus*, macula atra violaceo-pupillata ad angulum analem, striis tribus fuscis per cilia radiantibus. Exp. al.  $3\frac{1}{2}$  lin.

Head and face white. Antennæ fuscous, the tip and basal joint white. Anterior wings white; on the costa beyond the middle is a pale yellow spot obliquely placed, pointing towards the anal angle, and margined on both sides with fuscous; towards the apex is another spot on the costa placed more perpendicularly, *its converging sides* are margined with fuscous; below it is a black spot with a violet pupil; the apex of the wing is yellow, with a small fuscous spot; cilia white, with three dark fuscous streaks, one towards the costa, one to the extreme apex, and the other, originating at the same point, drooping. Posterior wings white, with white cilia.

Abundant from the middle of June to the end of July, among broom. The larva feeds in the spring under the bark of broom, making long, nearly straight galleries; when full-fed it emerges from its subcortical burrow, and spins its snow-white cocoon on the stem, under the shelter of a projecting bud. The cocoons may be advantageously collected at the beginning of June.

2. **Laburnella** (v. Heyden); Sta. Sup. Cat. p. 11 (1851). Alis anticis albis, macula costæ pone medium dilute flava fusco-marginata, macula altera costæ apicem versus, *lateribus parallelis* fusco-marginatis, macula atra violaceo-pupillata ad angulum analem, striis tribus fuscis per cilia radiantibus. Exp. al.  $3\frac{1}{2}$  lin.

Head and face white. Antennæ fuscous, the tip and basal joint white. Anterior wings white; on the costa beyond the middle is a pale yellow spot obliquely placed, pointing towards the anal angle, margined on both sides with fuscous; towards the apex is another yellow spot on the costa placed more perpendicularly, *its parallel sides* are margined with fuscous; below it is a black spot with a violet pupil; the apex of the wing is yellow, with a small fuscous spot; cilia white,

with three dark fuscous streaks, one towards the costa, one to the extreme apex, and one originating at the same point, drooping. Posterior wings white, with white cilia.

Abundant in May and August. The larva mines the leaves of the laburnum in autumn and July, making large greenish-white blotches, which, when they have been made some time, become almost white; the larva quits the leaf when full-fed, and spins its white cocoon in some convenient nook.

3. **scitella**, Zell. Isis, 1839, p. 214; Sta.—*Clerckella*, Step.; Fab.? Haw.? Alis anticis plumbeis, postice cupreis, maculis duabus costæ albis, macula atra violaceo-pupillata ad angulum analem, ciliis albidis cum striis *quatuor* radiantibus fuscis. Exp. al. 3 lin.

Head and face leaden-grey. Antennæ black, basal joint leaden-grey. Anterior wings leaden-grey; from the costa beyond the middle is a brownish streak, which reaches obliquely across the wing; beyond it are two short white streaks on the costa, separated by a copper-coloured portion, which reaches more than half across the wing; at the anal angle is a large black spot with a violet pupil; cilia whitish, with *four* radiating dark lines, two towards the costa, one continued to the extreme apex, the fourth rather drooping. Posterior wings pale leaden-grey, with grey cilia.

An abundant species in many localities in June and July. The larva mines the leaves of the hawthorn, apple, and pear, causing large flat dark brown blotches, and frequently to such an extent as to cause the hedges to appear of a brownish-green colour; when full-fed, in August or September, it quits the leaf, and spins its fine white cocoon, and after changing to pupa, it ejects the shrivelled larva-skin through a slit in the cocoon left for that purpose.

It is difficult to conceive a more beautiful insect than this! Goëze's rhapsodies at the sight of this (or a closely-allied species), in the fifth volume of the 'Naturforscher,' do not appear at all exaggerated, and are well worth perusal.

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#### Genus IV. OPOSTEGA.

OPOSTEGA, Zell. L. E. iii. 279 (1848). *Leucoptera* p., Hüb. *Elachista* p., Treit.; Dup. L. F. xi. *Aphelosetia* p., Step. *Opostega* p., Zell. Isis, 1839; Dup. Cat.

Capilli verticales subrigidi, occipitales depressi. Antennæ alis anterioribus breviores, crassiusculæ, *conchula basali magna*. Palpi labiales breves, penduli. Alæ anteriores non caudulatæ, posteriores angustæ,



lanceolatæ; anteriores: cellula nulla, *venis quatuor longitudinalibus simplicibus*; posteriores: vena mediana in tres ramos divisa.

Head in front with rather erect hairs, at the back smooth. Antennæ shorter than the anterior wings, *the eye-cap of the basal joint large*. Labial palpi short, drooping. Anterior wings slightly pointed, not caudate, the posterior narrow, lanceolate. In the anterior wings there are *only four simple longitudinal veins*, thus no discoidal cell. In the posterior wings the median vein divides into three branches.

Little is yet known of the habits of the insects of this genus, and the larvæ of none have yet been discovered. We have only three British species, which are readily distinguished.

1. **salaciella**, Treit. E. S. ix. 2. 180 (1833); Dup.; Zell.; Sta. Alis anticis *immaculatis* albidis. Exp. al. 5 lin.

Head and face whitish. Palpi white. Antennæ pale fuscous; basal joint whitish. Anterior wings *immaculate*, whitish, having a faint yellowish tinge; cilia white. Posterior wings pale grey, with whitish cilia.

Occasionally met with among grass in June and July; I have taken it at Dartford Heath.

2. **auritella**, Hüb. Tin. 387 (1816); Zell.; Sta. Alis anticis albis, *macula in medio dorsi oblique posita fusca*, striolis tribus costæ, duabus dorsi adversus punctum apicis atrum convergentibus. Exp. al.  $4\frac{1}{2}$  lin.

Head white. Face whitish. Palpi white. Antennæ pale fuscous; basal joint white. Anterior wings white, *with a fuscous spot on the middle of the inner margin obliquely placed*, pointing towards the apex of the wing; at the apex is a black spot, from which arise three short fuscous streaks towards the costa, two towards the inner margin, and two in the whitish cilia. Posterior wings grey, with paler cilia.

In the collections of Mr. Shepherd and Mr. Waring; the specimens were taken in the Cambridgeshire fens in June.

3. **crepusculella** (F. v. R.), Zell. Isis, 1839, p. 214; Id. L. E. iii. 284. ii. pl. 2. f. 41; Dup.?—*auritella*, Step. Alis anticis albis, *strigula parva* dorsi ante, *strigula majore costæ* pone medium fuscis, strigulis duabus parvis costæ apicem versus fuscis, puncto apicis atro. Exp. al. 4 lin.

Head white. Face whitish. Palpi white. Antennæ white, annulated with fuscous; basal joint white. Anterior wings white; on the inner margin a little before the middle is a *small fuscous streak*, obliquely placed, pointing towards the apex of the wing; beyond it is a *broader fuscous streak on the costa* pointing towards the anal angle; towards the apex of the wing are two fuscous streaks on the costa, and at the extreme apex is a black spot; cilia white, with two fuscous transverse streaks, one on each side of the apical black spot. Posterior wings grey, with paler cilia.

Occurs in marshy places at the end of June and beginning of July. Fischer observed this species to fly only at dusk, hence the name; but later observations show that it also flies earlier in the afternoon, especially if the weather be dull.

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Genus V. **BUCCULATRIX.**

BUCCULATRIX, Zell. L. E. iii. 286 (1848). *Tinea* p., Haw. *Elachista* p., Treit.; Dup. L. F. xi. *Argyromiges* p., Step. *Lyonetia* p., Zell. Isis, 1839; Dup. Cat.

Capilli hirsuti, epistomio lævigato. Antennæ breviusculæ, *conchula basali parvula*. Palpi nulli. Haustellum breve, nudum. Alæ anteriores caudulatæ, posteriores lanceolatæ; anteriores: cellula discoidalis acuta, potsice venas sex emittit, vena subcostalis longissime obsoleta, subdorsalis simplex; posteriores; vena mediana in tres ramos divisa, subdorsalis simplex.

Head rough, tufted; the face smooth. Antennæ rather short, with a rather small eye-cap to the basal joint. Palpi none. Tongue short and naked. Anterior wings caudulate, the posterior lanceolate. In the anterior wings the acute discoidal cell posteriorly emits six veins; the subcostal vein is obsolete for a considerable distance; the subdorsal vein is simple; in the posterior wings the median vein divides into three branches; the subdorsal vein is simple.

This genus offers several points of resemblance with the next family, but the larvæ have six well-developed true legs. The perfect insects are rather active, and frequently fly in little swarms round the plants on which the larvæ feed. The larvæ have a very singular habit, at least it has been observed in *Cratægi* and *Frangutella*, and probably it prevails throughout the genus: these larvæ when very young are true miners, that of *Cratægi* forms a short tortuous mine; that of *Frangutella* a spiral one, forming brownish-purple blotches on the leaf; at a certain age the larva quits the mine, and on the underside of the leaf spins a delicate whitish web or cocoon, within which the larva remains quite motionless and in a horse-shoe shape for a considerable time; it then emerges from this cocoon totally different in appearance to what it was as a leaf-miner, and proceeds to eat the epidermis of the leaf, which formerly it mined. The deserted cocoon will be found to contain the previous skin of the larva. The external-feeding larva has a singular shagreen appearance; when full-fed it descends to the ground, or some convenient corner, and spins an elongate ribbed cocoon, within which it remains unchanged for a considerable time.

Of the eleven British species, the first ten are so closely allied, and the gradation of species so imperceptible, that they do not admit of a tabular arrangement; the eleventh, *cristatella*, is distinguished by its unicolorous anterior wings. (Another unicolorous species occurs on the continent.)

1. *aurimaculella*, Sta. Cat. p. 28 (1849). Alis anticis dilute griseo-æneis, maculis duabus costæ, duabus dorsi (*prima basin versus per plicam producta*) albido-luteis; capillis saturate purpureis. Exp. al. 4 lin.

Head deep purple. Face bronzy. Antennæ fuscous; basal joint whitish-yellow. Anterior wings pale greyish-bronze, with two yellowish-white spots on the costa and two on the inner margin; the first costal spot is placed a little before, the second a little beyond the middle of the wing; the dorsal spots are anterior to the costal spots, and the first one does not touch the inner margin, and is continued along the fold towards the base of the wing; none of these spots are sharply margined; cilia greyish. Posterior wings grey, with paler cilia.

Not common; occurs on the downs beyond Croydon, and near Bristol, appearing in May and August. It has been thought to frequent *Carices*.

2. *cidarella* (Tischer), Zell. Isis, 1839, p. 216; Sta. Alis anticis purpurascente-brunneis, maculis duabus costæ, duabus dorsi albidis, suboppositis; capillis ferrugineis. Exp. al. 4 lin.

Head ferruginous. Face yellowish. Antennæ fuscous; basal joint yellowish. Anterior wings purplish-brown, with two whitish spots on the costa, and two on the inner margin; the first costal spot is a little before the middle, the second is half-way between that and the apex; the dorsal spots are nearer the base of the wing than the costal spots; cilia brownish. Posterior wings grey, with paler cilia.

Appears in June, but hitherto rarely met with; it appears to frequent alders.

3. *Ulmella* (Mann), Zell. L. E. iii. 288 (1848); Sta.—*Sircomella*, Sta.—*cuculipennella*, var. ♂, Haw.—*erythrodactyla*, W. V.P. Alis anticis ochreis, maculis quatuor costæ obliquis fuscis, secunda abbreviata, maculis duabus dorsi fuscis, priore obsoleta, secunda media ovata distinctiore; capillis fulvis. Exp. al. 3½ lin.

Head fulvous. Face pale yellowish. Antennæ fuscous; basal joint pale yellowish. Anterior wings yellowish-ochreous, with four fuscous spots on the costa obliquely placed, and two on the inner margin; the first costal spot begins at the base of the wing and terminates in the fold, the second is very small, reaching only a very little way from the costa, the third is broad and distinct, extending sometimes to the anal angle, the fourth is in the apex of the wing; between the two last is a small black spot on the disc; the first dorsal spot is near the base of the wing and is rather indistinct, the second lies beyond the middle, is

of an oval shape and very distinct; cilia pale ochreous, with some fuscous scales. Posterior wings grey, with paler cilia.

Common in May, June, and August, among oaks; here it never frequents elms. According to Mann's observations, the larva descends when full-fed in September, from the elms, of the leaves of which it eats the upper and lower epidermis. I have twice found a *Bucculatrix* larva on oak-leaves, probably of this species; but have not hitherto observed a mine in the oak-leaves, such as these larvæ may be expected to make.

4. **vetustella** (Mann), Sta. Cat. p. 28 (1849). *Alis anticis dilute ochreis*, maculis quatuor costæ obliquis brunneis, secunda abbreviata, maculis duabus dorsi, priore cum prima costali confluenta, secunda media fusca, introrsum nigro-squamata; capillis fulvis. Exp. al.  $3\frac{1}{2}$  lin.

Head *fulvous*. Face pale yellowish. Antennæ fuscous; basal joint pale yellowish. Anterior wings *pale yellowish-ochreous*, with four brownish spots on the costa and two on the inner margin; the first costal spot is sometimes confluent with the first dorsal spot, forming a broad angulated fascia, the second costal spot is very small, the third is darker than the others, and is continued to the anal angle, the fourth is in the apex of the wing; between the two last is a small black spot on the disc; in the middle of the inner margin is an *oval fuscous spot*, on its inner edge with some black scales; cilia pale ochreous. Posterior wings pale grey, with paler cilia.

Perhaps not specifically distinct from the preceding; I have a specimen taken among oaks in August.

5. **Cratægi**, Zell. Isis, 1839. p. 216.—*cratægifoliella*, Dup.; Sta. —*cuculipennella*, var.  $\gamma$ , Haw. *Alis anticis albidis, fusco-pulveratis*, maculis tribus costæ, duabus dorsi fuscis, secunda dorsi introrsum nigro-squamato, *lineola* disci ante apicem nigra; capillis griseis fuscisve. Exp. al. 4 lin.

Head *pale grey or fuscous*. Face whitish. Antennæ fuscous, basal joint whitish. Anterior wings *dirty whitish, much irrorated with fuscous*; a fuscous patch extends along the costa to the middle of the wing, beyond this are two fuscous spots on the costa, which are joined together on the disc by a small black dash; near the base of the inner margin is a cloudy fuscous patch; towards the anal angle is a fuscous oval spot, on its inner side margined with black; in the apex of the wing is a black spot, and some black scales are carried round it through the pale ochreous cilia. Posterior wings pale grey, with paler cilia.

Abundant in hedges in May and June. The larva at first mines within, subsequently feeding externally on the leaves of the hawthorn; the pale ochreous ribbed cocoon is more elongate than in *Ulmella*.

6. **Demaryella**, Sta. Zool. 1848. p. 2157; Dup.? *Alis anticis*

griseo-fuscis, maculis duabus costæ, duabus dorsi obliquis oppositis, *in fascias angulatas confluentibus*, spatio interjecto obscuriore; capillis fuscis. Exp. al. 4 lin.

Head fuscous. Face whitish. Antennæ fuscous, basal joint whitish. Anterior wings fuscous, with two pairs of obliquely-placed opposite streaks, *forming angulated fasciæ*, the first before the middle, the second before the apex; between them the ground-colour of the wing is darker fuscous; cilia fuscous. Posterior wings grey, with paler cilia.

Hitherto scarce; has occurred in the south of Scotland in June, among nut-bushes. Mr. Douglas took a specimen at West Wickham Wood.

7. **maritima**, Sta. Sup. Cat. p. 11 (1851). Alis anticis ochreis fuscisve, maculis duabus costæ, duabus dorsi obliquis oppositis, *lineolaque ex basi albis albidisve*, punctulo pone maculam priorem dorsi nigro, punctulo altero ad apicem maculæ secundæ costalis nigro, tertio angulum analem versus, quarto ante apicem, *macula albida costali in apicem producta*; capillis fulvis griseisve. Exp. al.  $3\frac{1}{2}$  lin.

Head fulvous, or greyish. Face whitish. Antennæ fuscous, basal joint whitish. Anterior wings extremely variable in colour and markings; in distinctly-marked specimens they are fuscous, with two pairs of obliquely-placed opposite white spots, and a *white basal streak*; in other specimens they are dirty ochreous, with these markings only faintly indicated; there is a black dot on the disc outside the first dorsal spot, and another at the apex of the second costal spot; between this and the anal angle is a third; *in the apex of the wing is another white or whitish costal spot*, and beyond it another black dot; cilia ochreous-grey, with a distinct row of black scales from the last costal spot to the anal angle. Posterior wings pale grey, with paler cilia.

Occurs early in July, on the coast at St. Osyth, and in the Isle of Sheppey.

8. **Boyerella**, Dup. L. F. xi. 548. pl. 309. f. 3 (1838); Zell.; Sta.—*albedinella*, Zell.; Dup.—*cuculipennella* p., Haw.; Step. Alis anticis albis fusco-pulveratis, maculis tribus costæ obliquis fuscis, prima abbreviata, *secunda tertiaque in striolas nigras desinentibus*, macula dorsi pone medium fusca, introrsum nigro-squamata; capillis albidis; antennis albis, fusco-annulatis. Exp. al. 4 lin.

Head whitish-grey. Face white. Antennæ white, annulated with fuscous, the basal joint white. Anterior wings white, irrorated with fuscous, with *three* oblique fuscous streaks from the costa, the first in the middle abbreviated, the *second* beyond the middle continued nearly to the anal angle, *having before its apex a black streak*, the third is in the apex of the wing, and terminates in a black streak; on the inner margin is an indistinct fuscous mark near the base of the wing, and beyond the middle is a fuscous spot internally margined with black; cilia greyish-white, with some fuscous scales round the apex. Posterior wings fuscous, with paler cilia.

Occurs among elms in May and June. I have seen at the end of August minute mines on elm-leaves, probably caused by this species, but was unable to meet with the larvæ. The larvæ were found by Mann on elms.

9. **Frangutella**, Goëze, E. B. iii. 4. 169. 291 (1783).—*Frangutella*, Zell.—*Alnella*, Vill.—*rhamnifoliella*, Treit.; F. v. R. pl. 7; Sta. Alis anticis albis, maculis *quatuor* costæ obliquis fuscis, macula dorsi medii majore fusca, *punctulo* nigro plicæ, *punctulo* altero nigro disci ante apicem; capillis albis. Exp. al.  $3\frac{1}{2}$  lin.

Head and face white. Antennæ white, annulated with fuscous. Anterior wings white, towards the apex irrorated with fuscous, with *four* costal spots and one dorsal spot fuscous; the first costal spot is near the base and very small (sometimes entirely wanting), the second and third are obliquely placed, one on each side of the middle, the fourth lies in the apex; the dorsal spot is opposite the second and third costal spots, and uniting with them forms an angulated fascia; on the inner edge of this spot in the fold is a black *dot*, and a black *dot* lies beyond the apex of the third costal spot; cilia whitish, traversed by two dark hinder-marginal lines. Posterior wings grey, with paler cilia.

Abundant in June and July among buckthorn, the leaves of which plant are at first mined, and afterwards eaten from the exterior, by the larvæ in August and September.

10. **Hippocastanella**, Dup. L. F. xi. 530. pl. 306. f. 4 (1838); Lienig; Zell.; Sta. Alis anticis griseo-fuscis, macula basali, macula dorsi ante medium, macula costæ mediæ, maculaque ad angulum analem majore *per striam brunneam interrupta* flavidis; capillis luteis. Exp. al. 3 lin.

Head whitish. Face silvery. Antennæ dark fuscous, basal joint white. Anterior wings greyish-fuscous, with a yellowish-white spot at the base, a similar spot on the inner margin before the middle, and one on the costa in the middle, and a larger yellowish-white patch at the anal angle, *which is intersected by a narrow streak of the ground-colour* running into the extreme apex of the wing; cilia grey. Posterior wings pale grey, with paler cilia.

Hitherto scarce; has been taken in Leigh Wood, near Bristol, and in the neighbourhood of Burton-on-Trent. Appears in May and August; the larva feeding on limes and horse-chestnuts (according to Lienig, also on birch and alder), in June and August.

11. **cristatella** (F. v. R.), Zell. Isis, 1839, p. 214; Sta. Alis anticis nitidis, *dilute griseis*, unicoloribus; capillis *luteis*. Exp. al. 3 lin.

Head *luteous*. Face grey. Antennæ dark fuscous, basal joint whitish. Anterior wings unicolorous, shining *pale grey*; cilia yellowish-grey. Posterior wings grey, with paler cilia.

Appears at the beginning of June and beginning of August; the only locality where it has hitherto occurred is the old tram-road near Croydon, where it has occasionally been taken by sweeping.

### FAMILY XIII. NEPTICULIDÆ.

Capilli superne ac in fronte hirsuti. Antennæ breves, crassæ, conchula modica instructæ. Palpi maxillares longiusculi, plicati, articulis ultimis pendulis. Palpi labiales breves, subporrectæ. Alæ anteriores latiusculæ, breves, grosse-squamatæ; posteriores lanceolatæ.

Head hairy above and in front. Antennæ short and thick, the basal joint furnished with a moderately-sized eye-cap. Maxillary palpi rather long, folded, the last joints drooping. Labial palpi short, subporrect. Anterior wings rather broad, short, coarsely scaled; the posterior wings lanceolate.

This family contains at present only two genera, the distinctive character of which lies in the neuration of the wings.

#### Genus I. NEPTICULA.

NEPTICULA, Zell. L. E. iii. 301 (1848). *Tinea* p., Haw. *Microsetia* p., Step. *Lyonetia* p., Zell. Isis, 1839; Dup. Cat.

Capilli superne ac in fronte hirsuti. Antennæ breves, crassæ, nudæ, conchula modica instructæ. Palpi maxillares longiusculi, plicati, articulis ultimis pendulis. Palpi labiales breves, subporrecti. Alæ anteriores breves, grosse-squamatæ, posteriores ovato-lanceolatæ; anteriores: vena subcostalis furcata, ramo inferiore cum mediana per venula cohærente, vena mediana postice in tres ramos divisa, subdorsalis in basi furcata; posteriores: vena mediana longissime furcata.

Head hairy above and in front. Antennæ short, thick, naked, the basal joint furnished with a moderate-sized eye-cap. Maxillary palpi rather long, folded, the last joints drooping. Labial palpi short, subporrect. Anterior wings short, coarsely scaled, the posterior ovate-lanceolate. In the anterior wings the subcostal vein is furcate, and the lower branch is connected by a transverse vein with the median vein; the median vein divides posteriorly into three branches, the subdorsal vein is furcate at the base. In the posterior wings the median vein is furcate.

The resemblance in this genus to MICROPTERYX, as shown by the short antennæ, folded maxillary palpi, and transverse connective vein of the anterior wings, is very singular.

The habits of this genus are very interesting. The perfect insects repose on the trunks of trees, on palings, etc., but unless the collector be cautious, he will find on his too near approach they take alarm; they run exceedingly nimbly, and keep swaggering a little from side to side as they run, looking the very impersonation of minute importance; when on the wing they fly rather quickly (though nothing in comparison to their alacrity in running), and have much the appearance of minute DIPTERA. Some species fly of their own accord in the early morning: thus *N. pygmaella* is on the wing about sunrise in August; and when everything is quiet on a calm dewy morning,—the spiders' webs with their spangled drops reflecting the beams of the rising sun,—it is a pleasant sight to see this minute insect darting backwards and forwards among the hawthorn-leaves, evidently in the *acme* of enjoyment. It happens that this species is not remarkable for the brilliancy of its colours, but in this genus are to be found the humming-birds of the TINEINA; and the lovely *N. gratiosella*, reflecting nearly all the colours of the rainbow, dances in little swarms round the twigs of hawthorn, in the blaze of the mid-day sun.

The larvæ of this genus are very peculiar: the six anterior *legs* so universally present in Lepidopterous larvæ are wanting, and they are replaced by membranous processes or *prolegs*, yet neither on these segments, nor on the remaining segments, each of which is furnished with a pair of prolegs (making eighteen in all) have the prolegs the usual coronet of little hooks; these larvæ are consequently bad hands at walking, which nevertheless they have to do when full-fed, for then they quit the mine in which they have hitherto lived, and seek a fit place for their cocoon. The mines are always flat, generally of an irregular serpentine form, though sometimes spiral, and sometimes forming a complete blotch; when held to the light, the larvæ can be distinctly seen, and their colour and markings recognized. The cocoons are, I believe, generally formed on the ground amongst the fallen leaves; at any rate, in such situations the larvæ form them in our breeding cages; and it is a very singular fact that, though solitary in the larva state, we always find that the cocoons are made in company, sometimes a dozen between two leaves. The cocoons vary considerably in colour, texture, and form, according to the species.

The species of this genus are exceedingly numerous. I have no doubt I have several others than those here enumerated, though to enable me to describe them I require more specimens, in finer



condition, and especially bred specimens, as the habit of the larva, its colour, and the form and colour of its cocoon, frequently are invaluable helps to prove the distinctness of species, and it is only during the last two years that we have learnt how to collect these larvæ, so that this branch of the study is completely in its infancy.

The twenty-nine British species may be arranged in the following table:—

- a. Anterior wings without spots or fasciæ. Species 1-6.
- a a. Anterior wings with pale spots, no fasciæ.
  - b. With a single minute pale spot on the inner margin. Species 7-9.
  - b b. With two opposite pale spots. Species 10-13.
  - b b b. With two opposite pale spots and a broad basal streak. Species 14.
  - b b b b. With three pale spots. Species 15.
- a a a. Anterior wings with pale spots and a pale fascia. Species 16.
- a a a a. Anterior wings with a pale fascia.
  - c. The fascia indistinct and rather dull. Species 17, 18.
  - c c. The fascia distinct, bright, frequently metallic. Sp. 19-29.

1. **atricapitella**, Haw. L. B. 555 (1829); Step.; Sta.—*samiatella* ♂, Zell.? Alis anticis *saturate æneis*, postice violaceis; capillis *atris*. Exp. al. 3 lin.

Head *black*. Face *yellowish*. Palpi *whitish*. Antennæ *black*, basal joint *whitish*. Anterior wings *dark bronze*, posteriorly shading to *violet*; cilia *pale grey*. Posterior wings *grey*, with *paler* cilia.

Common in May on the trunks of oaks, or on fences; occurs more sparingly in August. The larva mines the leaves of the oak in July, September, and October, but has not yet been distinguished from other larvæ of a similar habit.

2. **ruficapitella**, Haw. L. B. 586 (1829); Step.; Sta.—*samiatella* ♀, Zell.? Alis anticis *dilute æneis*, apicem versus violaceis; capillis *ferrugineis*. Exp. al. 3 lin.

Head and face *reddish-yellow*. Palpi *whitish*. Antennæ *fuscous*, basal joint *whitish*. Anterior wings *rather pale bronze*, with the apex *violet*; cilia *greyish*. Posterior wings *pale grey*, with *paler* cilia.

Common on the trunks of oak, or on fences, in May; also appears, though less plentifully, in August. The larva mines the leaves of the oak in July, and in September and October.

3. **anomalella**, Goëze, E. B. iii. 4. 168. 290 (1783); Sta.—*Rosella*, Schr.—*ruficapitella*, Lewis (Ent. Mag. i. 422). Alis anticis *dilutissime æneis*, pone medium *dilutioribus*, apice obscure violaceo; capillis *luteis* (interdum *atris*). Exp. al.  $2\frac{1}{2}$  lin.

Head and face *bright yellow* (sometimes *black*). Palpi *whitish*. Antennæ *fuscous*, basal joint *whitish*. Anterior wings *very pale bronze*,

*a little paler* beyond the middle, the apex dull violet; cilia greyish. Posterior wings pale grey, with pale grey cilia.

Abundant in gardens and hedges in May and August, but rarely seen in the perfect state. The *yellowish* larva is very conspicuous, mining *in long tortuous galleries* in the leaves of the rose in July and autumn; the *orange* or *brown* cocoon is frequently made in the foot-stalk of the leaf, sometimes on the stem, under the shelter of a projecting thorn; its outer covering projects beyond it like a tent, making it appear much larger than it really is. This species has an historical interest, having been observed by De Geer, Goëze, and Lewis; and the exhibition by Mr. Westwood of some bred specimens of this species, at the September meeting of the Entomological Society in 1851, led to the attention of Micro-Lepidopterists being drawn to the larvæ of this genus, and was the proximate cause of all the discoveries that have since been made respecting them.

4. **pygmælla**, Haw. L. B. 586 (1829); Sta.; Step.? *Alis anticis cinereis, postice dilutissime violaceo-tinctis; capillis luteis.* Exp. al. 2-3 lin.

Head and face *yellowish*. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings pale *ashy-grey*, with a *very slight* violet tinge towards the apex; cilia paler. Posterior wings whitish-grey, with whitish-grey cilia.

Common in May and August, flying along hawthorn hedges at 5 A.M. The *yellowish* larva mines the leaves of the hawthorn in July and autumn.

5. **Oxyacanthella**, n. sp. *Alis anticis fuscis purpureo-tinctis, postice purpureis; capillis luteis.* Exp. al.  $2\frac{1}{2}$  lin.

Head and face *deep yellow*. Palpi whitish. Antennæ dark fuscous, with the basal joint whitish. Anterior wings *fuscous, tinged with purple*, beyond the middle almost entirely purple. Posterior wings pale grey, with pale grey cilia.

Appears in May, but not hitherto observed in the perfect state. The *bright green* larva is very common in hawthorn-leaves in autumn, making *long galleries*; it mines also (I believe) in the leaves of the wild apple.

6. **viscerella** (Dougl.), Sta. Zool. 1853. p. 3958. *Alis anticis olivaceis, postice saturationibus; capillis luteis, fusco-mixtis.* Exp. al.  $2\frac{1}{2}$  lin.

Head and face *yellowish, intermixed with fuscous*. Antennæ fuscous, basal joint whitish. Anterior wings rather of an *olive* tint, posteriorly darker, with whitish cilia. Posterior wings whitish-grey, with whitish-grey cilia.

Appears in May (?), but not hitherto met with in the perfect

state. The *bright green* larva mines the leaves of the elm in autumn, making the *convolutions* of its narrow mine so close together that they form brown *blotches*; it is excessively abundant in many localities.

7. **Catharticella**, Sta. Zool. 1853. p. 3958. Alis anticis nigris, dilutissime purpureo-tinctis, *puncto minuto* dorsi pone medium albo; capillis ferrugineis; tarsis posticis albidis, *fusco-annulatis*. Exp. al.  $2\frac{1}{2}$  lin.

Head and face reddish-yellow. Palpi whitish. Antennæ fuscous, basal joint whitish. Hinder tarsi whitish, *annulated with dark fuscous*. Anterior wings black, with a very faint purple tinge, with a *minute white* spot on the inner margin near the anal angle; cilia whitish. Posterior wings pale grey, with pale grey cilia.

Appears in May (?) and August, but not hitherto met with in the perfect state. The larva feeds in autumn and July, on the leaves of *Rhamnus catharticus*, making rather broad galleries; it is excessively abundant on several bushes in my own neighbourhood, yet, though I have searched and beaten for the perfect insect, when I expected it should be out, at various hours of the day, I never succeeded in finding a single specimen.

8. **Septembrella**, Sta. Cat. p. 29 (1849). Alis anticis nigris, *macula triangulari* dorsi pone medium albida, capillis ferrugineis; antennis fuscis; tarsis posticis *unicoloribus albidis*. Exp. al. 2 lin.

Head and face reddish-yellow. Palpi whitish. Antennæ fuscous, basal joint whitish. Hinder tarsi *unicolorous whitish*. Anterior wings black, with a *rather triangular whitish* spot on the inner margin beyond the middle; cilia whitish. Posterior wings whitish-grey, with paler cilia.

The original specimen was taken by Mr. Bedell, at West Wickham Wood, in September; it probably appears in May and August, but a summer brood of the larva has not yet been observed. The larvæ mine the leaves of *Hypericum pulchrum* in autumn, making extremely slender mines, and going several times round and across the small leaves they inhabit; when full-fed they pucker the leaf a little, and *form their cocoon inside it, never quitting the mine till they assume the perfect state*, thus quite abnormal to the ordinary habits of the genus.

9. **intimella**, Zell. L. E. iii. 323 (1848); Sta.; Sircom. Alis anticis saturate fuscis, *macula dorsi paullo post medium lutescente*; capillis luteis; antennis *lutescentibus*. Exp. al. 3 lin.

Head and face yellowish. Palpi whitish. Antennæ *dirty pale yellowish*, basal joint whitish. Anterior wings dark fuscous, with a *yellowish* spot on the inner margin, *a little beyond the middle*; cilia greyish-fuscous. Posterior wings grey, with paler cilia.

Taken by Mr. Sircom, near Bristol, in June, among shallows, by sweeping the upper branches; also occurs at Dartford Heath.

10. **Headleyella**, n. sp. Alis anticis griseis, grosse squamatis, maculis duabus parvis argenteo-albidis, oppositis pone medium, costali anteriore; capillis luteo-griseis. Exp. al. 2 lin.

Head and face luteous, mixed with grey. Palpi whitish. Antennæ grey, basal joint whitish. Anterior wings rather coarsely scaled, dark grey, with two small whitish-silvery opposite spots beyond the middle, that on the costa being nearer to the base; between these spots is a considerable breadth of the ground-colour; cilia grey. Posterior wings grey, with paler cilia.

Two specimens taken by Mr. Douglas, in the hilly field at Headley Lane, early in August.

11. **subbimaculella**, Haw. L. B. 583 (1829); Step.; Sta.—*cursoriella*, Zell.—*nigrociliella*, Step.? Alis anticis nigris, macula basali per dorsum producta, macula costali in medio, maculaque dorsi pone medium luteo-albidis; capillis fulvis. Exp. al. 3 lin.

Head and face orange-luteous. Palpi pale. Antennæ dark fuscous, basal joint whitish. Anterior wings black, with a whitish patch at the base extending along the inner margin; in the middle on the costa is a rather triangular whitish-yellow spot, and beyond it on the inner margin is a larger triangular whitish-yellow spot; cilia whitish. Posterior wings pale grey, with paler cilia.

Abundant among oaks in June. The pale greenish-white larva mines the leaves of the oaks in autumn; it keeps close to a rib of the leaf, and though its mine is narrow, it turns upon itself so as to form a small blotch. It is a singular fact in vegetable physiology, that when the leaves are turning brown, the spots tenanted by these larvæ remain green much longer than the remainder of the leaf, and this may frequently be observed in the leaves after they have fallen.

12. **argyropeza**, Zell. Isis, 1839, p. 215; Id. L. E. iii. 320. Alis anticis nigrescentibus, macula parva costæ ante medium, macula dorsi post medium majore albidis; capillis fulvis. Exp. al. 3 lin.

Head and face deep luteous. Palpi whitish. Antennæ dark fuscous, basal joint whitish. Anterior wings blackish, with a small whitish spot on the costa, rather before the middle, and a larger one on the inner margin beyond the middle; cilia whitish. Posterior wings grey, with paler cilia.

Has occurred in May, on a fence near Beckenham.

13. **apicella**, n. sp.—*argyropeza*, Sta.—*argyropeza*, var.  $\beta$ , Zell. Alis anticis nigricanti-griseis, maculis duabus albidis oppositis, paullo post medium; capillis fulvis. Exp. al. 3–3½ lin.

Head and face deep luteous. Palpi whitish. Antennæ grey, basal

joint whitish. Anterior wings *dark grey, beyond the middle* are two *opposite* whitish spots, that on the inner margin is the larger; cilia whitish. Posterior wings pale grey, with paler cilia.

Has occurred on the stem of a poplar-tree, at Woodhead Moors in June, and on a fence near Beckenham in May.

14. **trimaculella**, Haw. L. B. 583 (1829); Sta.—*rusfella*, Zell. Alis anticis fuscis, *linea lata albida a basi usque medium*, maculis oppositis triangularibus pone medium albidis; capillis luteis. Exp. al.  $2\frac{1}{2}$  lin.

Head and face yellowish. Palpi fuscous. Antennæ fuscous, basal joint whitish. Abdomen and hind legs grey in the ♀, *reddish* in the ♂. Anterior wings dark fuscous, *with a broad basal streak*, taking up half the breadth of the wing and *reaching to the middle*, and with two triangular whitish opposite spots beyond the middle, not unfrequently uniting across the wing; cilia pale ochreous-grey. Posterior wings pale grey, with paler cilia.

Appears in May and August, frequenting the stems of poplars, but not common.

15. **quinquella**, Bedell, Zool. 1848, p. 1986. Alis anticis nigris, maculis *tribus* argenteo-albidis, prima costæ ante, secunda dorsi pone medium, *tertia disci apicem versus*; capillis nigris. Exp. al.  $2\frac{1}{2}$  lin.

Head and face black. Palpi whitish. Antennæ black, basal joint yellowish. Anterior wings black, with *three* whitish, rather silvery spots, the first on the costa before the middle rather triangular, reaching a little obliquely half across the wing, the second, on the inner margin beyond the middle, is in the form of a right-angled triangle; *between it and the apex of the wing is the third spot*, which is small and round; cilia silvery-grey. Posterior wings grey, with paler cilia.

Has occurred in June and July, on the trunks of oaks at West Wickham Wood, and on palings near Beckenham.

16. **sericopeza**, Zell. Isis, 1839, p. 215; Sta.—*Maryella*, Dup.? —*Louisella*, Sircom? Alis anticis saturatissime fuscis, basi, *fascia obliqua ante*, maculis oppositis pone medium albidis; capillis fuscis. Exp. al.  $2\frac{1}{2}$  lin.

Head fuscous. Face yellowish. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings very dark fuscous, almost black, with the base, *an oblique fascia before the middle* (broadest on the inner margin), and two opposite spots beyond the middle (that on the inner margin, the posterior), *whitish*; cilia fuscous. Posterior wings pale grey, with paler cilia.

I have two specimens taken on the Dartford Heath fence in June; Mr. Sircom took his *Louisella* near Bristol.

17. **floslactella**, Haw. L. B. 585, (1829); Step.—*hemarygyrella*, Zell.? Alis anticis luteis, *basim versus fusco-irroratis*, apicem versus

fuscis, fascia fusca paullo post medium, fasciam totam luteam præcedente; capillis luteis. Exp. al.  $2\frac{1}{2}$ –3 lin.

Head and face bright luteous. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings *yellowish, sparingly irrorated with fuscous towards the base*; the fuscous scales form a fascia a little beyond the middle, which immediately precedes an uninterrupted fascia of the ground-colour; the apical portion of the wing is entirely fuscous, with a faint violet tinge; cilia whitish-yellow. Posterior wings pale grey, with pale grey cilia.

Appears in May and August. The *moderate-sized yellowish* larvæ make *broad* tortuous galleries in the leaves of the nut and hornbeam, occurring in autumn and July; there are rarely more than half-a-dozen in one leaf. The cocoon is very *flossy*, and of a *whitish* or *pale yellowish* colour.

18. **Salicis**, n. sp. Alis anticis *fuscis, dilute luteo parum irroratis*, postice saturatoribus et violaceo-tinctis, maculis duabus dilute luteis pone medium, fasciam obsoletam obliquam formantibus; capillis ferrugineis. Exp. al.  $2\frac{1}{2}$ –3 lin.

Head and face reddish-yellow. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings *fuscous, slightly irrorated with pale luteous*, posteriorly darker and with a faint violet tinge; *beyond the middle are two ill-defined, pale luteous spots, forming an indistinct oblique fascia*; the costal spot is anterior to the dorsal spot; cilia pale luteous. Posterior wings pale grey, with pale grey cilia.

Appears in May and August. The *yellowish* larva makes small tortuous mines, resembling blotches in the leaves of sallows in autumn and in July.

19. **microtheriella**, Wing, n. sp. Alis anticis *fuscis*, paullulum *purpureo-tinctis*, præcipue apicem versus, fascia tenui, subobliqua pone medium *albida*; capillis luteis, fusco-mixtis. Exp. al.  $1\frac{3}{4}$  lin.

Head and face yellowish, slightly mixed with fuscous. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings *fuscous, slightly tinged with purple*, especially towards the apex; beyond the middle is a slightly oblique, rather slender *whitish fascia*; cilia fuscous. Posterior wings grey, with paler cilia.

The smallest known Lepidopterous insect! Appears in May and August, but rarely met with in the perfect state; the *small yellowish-green* larva makes *extremely narrow* tortuous galleries in the leaves of the nut and hornbeam, occurring in autumn and July. It is sometimes so abundant that upwards of thirty may be found in a single leaf! The *rather firm* cocoon is of a *pale buff* colour.

20. **ignobilella**, Sta. Cat. p. 29 (1849).—*aurella*, var.  $\beta$ . Haw.?—*posticella*, Steph.? Alis anticis *dilute aureo-brunneis*, apicem versus

purpureo-tinctis, *fascia recta* pone medium, *parum nitida*, *luteo-albida*; capillis ferrugineis. Exp. al.  $2\frac{1}{4}$  lin.

Head and face reddish-yellow. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings *pale golden-brown*; beyond the middle is a *straight, yellowish-white, slightly shining fascia*; the apex of the wing has a purplish tinge; cilia fuscous. Posterior wings pale grey, with pale grey cilia.

Appears in May and August, but not frequently met with. The yellowish larva mines in hawthorn-leaves in autumn and July, but has not at present been distinguished from the larva of *pygmaella* and *gratiosella*.

21. **argentipedella**, Zell. Isis, 1839, p. 215; Sta.—*mediosciella*, Haw. ? Step. ?—*minimella*, Zett. ? Alis anticis violaceo-nigris, *fascia latiuscula albida* pone medium; capillis nigris. Exp. al.  $3\frac{1}{2}$  lin.

Head and face black. Palpi dark grey. Antennæ fuscous, basal joint whitish. Anterior wings black, with a violet gloss, with a *rather broad whitish fascia* beyond the middle, placed rather obliquely, being nearest the base of the wing on the costa; in the middle it is sometimes interrupted; cilia grey. Posterior wings grey, with paler cilia.

Occurs among birches in May and June, but not common. It has been bred by Herr Bouché, from larvæ mining in birch-leaves.

22. **Acetosæ** (Sta.), Shield, Zool. 1853, p. 4153. Alis anticis nitidis fuscis, *pone medium violaceo-tinctis*, *fascia fere recta* pone medium *nitida alba*; capillis fuscis. Exp. al. 2 lin.

Head fuscous. Antennæ fuscous, basal joint whitish. Anterior wings shining fuscous, *with a faint violet tinge beyond the middle*; beyond the middle is a nearly straight, *shining, whitish fascia*; cilia fuscous. Posterior wings pale grey, with pale grey cilia.

Appears in May and August. The larva mines the leaves of the sorrel in autumn and in July; the mine is very peculiar; it makes a series of concentric circles till, as though the centrifugal force at length became too great, it flies off at a tangent into an irregular tortuous gallery. It has only hitherto been met with by Mr. Shield, near Dublin, in some sorrel-plants growing among furze-bushes, consequently in sheltered situations. Mr. Shield has only succeeded in rearing a single specimen, which, with the view of disseminating information, he has very liberally placed in my collection; as it is extremely hazardous to describe *Nepticule* from single specimens, the above description of the perfect insect must be looked at as an approximation only; from the habit of the larva, no doubt can attach to its being a distinct species.

23. **plagicolella**, n. sp. Alis anticis nitidis fuscis, postice pur-

purco-tinctis, fascia fere recta pone medium nitida, albida, *parum argentea*; capillis *ferrugineis*. Exp. al. 2 lin.

Head and face *reddish-yellow*. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings shining fuscous, with a purple tinge *which begins before the middle of the wing*; beyond the middle is a nearly straight, shining, whitish, *rather silvery* fascia; cilia fuscous. Posterior wings pale grey, with pale grey cilia.

Appears in May and August, but I believe not hitherto met with in the perfect state. The larva mines in the leaves of the sloe in autumn and July, making *large whitish blotches*; in some places it is exceedingly plentiful; the cocoon is rather flat.

24. **Tityrella**, Douglas, n. sp. Alis anticis *nitidis fuscis*, vix olivaceo-tinctis, postice saturationibus, *fascia subobliqua pone medium dilute aurea, ad dorsum latiore*; capillis luteis. Exp. al.  $2\frac{1}{2}$  lin.

Head and face luteous. Palpi pale luteous. Antennæ fuscous, basal joint pale luteous. Anterior wings *shining fuscous*, with a very faint olive tinge, darker towards the apex, *with a pale golden, rather oblique fascia beyond the middle, broadest on the inner margin*, and its posterior edge concave; cilia very pale grey. Posterior wings pale grey, with pale grey cilia.

Appears in May and August. The larva makes *rather broad galleries towards the margins* of the leaves of the beech, in autumn and July.

25. **Malella**, n. sp. Alis anticis *saturate fuscis, fascia subobliqua pone medium alba, parum nitida*; capillis ferrugineis. Exp. al. 2 lin.

Head and face reddish-yellow, slightly mixed with fuscous. Antennæ fuscous, basal joint whitish. Anterior wings *dark fuscous*, with a *slightly oblique, almost white, slightly shining fascia* beyond the middle; cilia fuscous. Posterior wings pale grey, with pale grey cilia.

Appears in May and August, but not hitherto met with in the perfect state. The *yellow* larva mines in autumn and July in the leaves of the wild apple, making long galleries; the cocoon is bright yellow.

26. **angulifasciella**, Sta. Cat. p. 29 (1849).—*Centifoliella*, Zell.? Alis anticis *nigris*, maculis duabus oppositis in medio *argenteo-albis*, in *fasciam angulatam* confluentibus; capillis luteis. Exp. al.  $2\frac{1}{2}$  lin.

Head and face deep *luteous*. Palpi whitish. Antennæ dark fuscous, basal joint whitish. Anterior wings *black*, with a *silvery-white* spot on the costa about the middle, and a similar *silvery-white* spot on the middle of the inner margin; these spots frequently unite to form a slender *angulated fascia*; cilia whitish. Posterior wings grey, with paler cilia.

Has occurred on fences and in hedges in June, but hitherto very scarce. The larva (which I believe belongs to this species)



feeds in the rose-leaves in autumn, making *large blotches*; it is *pale greenish*, and it makes a dark *blackish-green* cocoon.

27. **gratiosella**, Sta. Cat. p. 29 (1849); Dup.? Alis anticis dilute aureo-brunneis, postice violaceis, fascia fere recta pone medium *cærulescente-argentea*; capillis atris. Exp. al. 2 lin.

Head and face *black*. Palpi whitish. Antennæ dark fuscous; basal joint white. Anterior wings pale golden-brown, with a nearly straight *bluish-silvery* fascia beyond the middle, the apex of the wing violet; cilia fuscous. Posterior wings grey, with paler cilia.

Not uncommon in May, flying round the hawthorn-twigs, in the sunshine, also plentiful on palings at Beckenham. The larva is one of the yellowish larvæ which mine the leaves of hawthorn in autumn.

28. **marginicolella**, Sta. Zool. 1853, p. 3958.—*Centifoliella*, Sta. Cat.—*aurella*, var.  $\gamma$ . Haw.—*lemniscella*, Zell.? Alis anticis *late aureo-brunneis*, pone medium purpureo-tinctis, apice *saturate purpureo*, fascia *obliqua* pone medium *argenteo-alba*; capillis  $\delta$  atris,  $\eta$  *ferrugineis*. Exp. al.  $2\frac{1}{2}$ –3 lin.

Head of the  $\delta$  *black*, of the  $\eta$  *reddish-yellow*. Palpi whitish. Antennæ fuscous; basal joint whitish. Anterior wings *rich golden-brown*, with a purple tinge beyond the middle; beyond the middle is a *rather oblique silvery-white* fascia; the apex of the wing is *deep purple*; cilia pale fuscous. Posterior wings grey, with grey cilia.

Appears in May and August, but hitherto only met with in the perfect state on a fence near Beckenham in May. The *yellowish* larva mines in autumn and July the leaves of the elm, making a long, *not intertwined* gallery, frequently *at the edge of the leaf*, going in and out of each serrature.

29. **aurella**, Fab. S. E. 666. 65 (1775); Haw.; Step.; Zell.; Sta. Alis anticis *late aureo-brunneis*, pone medium purpureo-tinctis, apice *saturate violaceo*, fascia *recta* pone medium *dilute aurea*; capillis *ferrugineis*. Exp. al.  $3$ – $3\frac{1}{2}$  lin.

Head and face *reddish-yellow*. Palpi whitish. Antennæ fuscous; basal joint whitish. Anterior wings *rich golden-brown*, beyond the middle with a purple tinge; beyond the middle is a *nearly straight, pale golden* fascia; the apical portion of the wing is *deep violet*; cilia fuscous. Posterior wings grey, with grey cilia.

This is the largest and best-known species of the genus; it occurs nearly throughout the year, being however most plentiful in May and August. The larva mines the leaves of the bramble, making long tortuous galleries; I believe it may be found in every month of the year; it makes a singular flattened cocoon, with scalloped edges.

Genus II. **TRIFURCULA.**

TRIFURCULA, Zell. L. E. iii. 330 (1848). *Lyonetia* p., Zell. Isis, 1839.

Capilli superne et in fronte hirsuti. Antennæ breviusculæ, nudæ, conchula modica instructæ. Palpi maxillares longiusculi, plicati, articulis ultimis pendulis. Palpi labiales breves, subporrecti. Alæ anteriores breves, grosse-squamatæ, posteriores ovato-lanceolatæ; anteriores: vena subcostalis furcata, vena mediana *arcuata trifida*, vena subdorsalis *simplex*; posteriores: vena mediana *trifida*, subdorsalis longiuscula.

Head above and in front hairy. Antennæ rather short, naked, the basal joint furnished with a moderate-sized eye-cap. Maxillary palpi rather long, folded, the last joints drooping. Labial palpi short, subporrected. Anterior wings short, coarsely scaled, the posterior ovate-lanceolate. In the anterior wings the subcostal vein is furcate, the arched median vein is *trifid*, and the subdorsal vein is *simple*. In the posterior wings the median vein is *trifid*, the subdorsal vein rather long.

The investigation of the generic characters of these insects is rendered extremely difficult, from their small size and hairy heads; smooth-headed species of equal size would be far more easily examined; it is also difficult to examine the neuriation of the wings, and I am therefore doubtful whether the distinctness of this genus from the preceding has been sufficiently established. On the other hand, it may be that it would be more correct to divide the *Nepticulidæ* into a greater number of genera\*.

The four species placed in this genus all agree in the absence of definite markings, such as spots and fasciæ, and are best distinguished by their coarsely-scaled, irrorated appearance.

1. **atrifrontella**, Sta. Sup. Cat. p. 11 (1851). Alis anticis luteo-albidis, fusco suffusus, basi costæ tantum sine squamis fuscis; capillis atris. Exp. al. 4 lin.

Head and face *black*. Palpi whitish. Antennæ dark fuscous, basal joint whitish. Anterior wings yellowish-white, almost entirely suffused with dark fuscous scales, only the base of the costa remaining of the ground-colour; cilia greyish. Posterior wings pale grey, with paler cilia.

Two specimens in Mr. Bedell's collection. I have a specimen taken at Lewisham from a mixed hedge, in August.

\* Here I must mention the singular insect taken by Mr. Boyd among alders, in the New Forest, last summer, and which I cannot consider Lepidopterous, though so completely Nepticuliform. Its longer antennæ, longer legs, differently-shaped broader posterior wings, and neuriation of the anterior and posterior wings, would clearly place it in a distinct genus, if admitted as Lepidopterous; but the more polished appearance of the anterior wings, and its general *facies*, induce me to think it Trichopterous. Many of the smaller *Trichoptera* are continually being taken for *Tineina*, but, except in the present instance, I am not aware that any difficulty has been found in ultimately distinguishing them.

2. **squamatella**, Sta. Cat. p. 30 (1849). Alis anticis albidis griseo-squamatis, *squamis costæ dorsique rarioribus, linea longitudinali tenui curvata disci albida*; capillis luleis. Exp. al. 4 lin.

Head and face luteous. Palpi whitish. Antennæ fuscous, basal joint whitish. Anterior wings whitish, irrorated with grey scales, *the costa and inner margin being less suffused, and a very slender curved longitudinal line on the disc, uninterruptedly whitish*; cilia whitish. Posterior wings pale grey; cilia whitish.

A few specimens have occurred among broom in August, in company with the following, of which perhaps it is only a variety.

3. **immundella**, Zell. Isis, 1839, p. 215, 339; Sta. Alis anticis albidis *ubique griseo-squamatis*; capillis luleis aut violaceis. Exp. al.  $3\frac{1}{3}$ —4 lin.

Head and face *luteous*, sometimes *violet*. Palpi whitish. Antennæ grey, basal joint whitish. Anterior wings whitish, *irrorated with grey scales throughout*; cilia whitish. Posterior wings pale grey, with yellowish cilia.

Common amongst broom in July, and at the beginning of August; has occurred at Charlton, Dartford Heath, etc., and in the south of Scotland.

4. **pulverosella**, Sta. Cat. p. 30 (1849). Alis anticis albis, *grosse cinereo-squamatis, capillis ferrugineis*. Exp. al. 3 lin.

Head and face *ferruginous*. Palpi whitish. Antennæ grey, basal joint whitish. Anterior wings with coarse *dark ashy-grey* scales, upon a paler ground; cilia yellowish-white. Posterior wings pale grey, with yellowish-white cilia.

A few specimens have occurred in May and June, among wild apple-bushes.

## E R R A T A.

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- Page 1, line 4 from bottom, for *Heterogyius* read *Heterogynis*.  
 „ 3, l. 7 from bottom, for will apply read well apply.  
 „ 5, l. 6 from bottom, for *tribus varius* read *tribus, varius*.  
 „ 22, l. 26, for *Dactylus glomeratus* read *Dactylis glomerata*.  
 „ 22, l. 28, for *Dactylus* read *Dactylis*.  
 „ 23, l. 9, for *Dactylus glomeratus* read *Dactylis glomerata*.  
 „ 39, l. 12 from bottom, for Bruaud read Bruand.  
 „ 47, l. 20, for *dilutis* read dilute.  
 „ 52, l. 23, for there brilliant coppery read then brilliant coppery.  
 „ 57, l. 23, for the simplex read the simple.  
 „ 61, bottom line, for elongated read elongate.  
 „ 75, l. 4 from bottom, for remarkably read remarkable.  
 „ 76, l. 27, for PHORICOPTERA read PSORICOPTERA.  
 „ 118, l. 18 from bottom, for in quo read in qua.  
 „ 128, l. 16 from bottom, for a slight interrupted read a slightly interrupted.  
 „ 130, l. 13 from bottom, for cloudy dark fascia read cloudy dark fasciæ.  
 „ 131, l. 14 from bottom, for *albistrigella*, Step., read *albistrigella*, Step.?  
 „ 134, l. 5 from bottom, for pale annulations read paler annulations.  
 „ 137, l. 20, after in the insert First Edition of the.  
 „ 150, l. 16 from bottom, for *producto* read *producti*.  
 „ 179, l. 13, for a large one read a larger one.  
 „ 180, l. 18 and l. 26, for *Echium* read *Echium*.  
 „ 192, l. 8 from bottom, for posteriorly dark read posteriorly darker.  
 „ 213, l. 21, after *costam* insert a comma.  
 „ 213, l. 8, after *apicem* insert a comma.  
 „ 216, l. 19, for *galipennella* read *gallipennella*.  
 „ 233, l. 20, for median call read median cell.  
 „ 260, l. 19 from bottom, after and insert with a.  
 „ 265, l. 9, for Wing read Wings.  
 „ 269, l. 18 from bottom, for striking paler read strikingly paler.  
 „ 272, l. 6, after spotted insert with.  
 „ 281, l. 2, for wings read wing.  
 „ 283, l. 1, for Wing read Wings.  
 „ 283, l. 13 from bottom, for non cum read mox cum.  
 „ 303, l. 10, for larva read larvæ.

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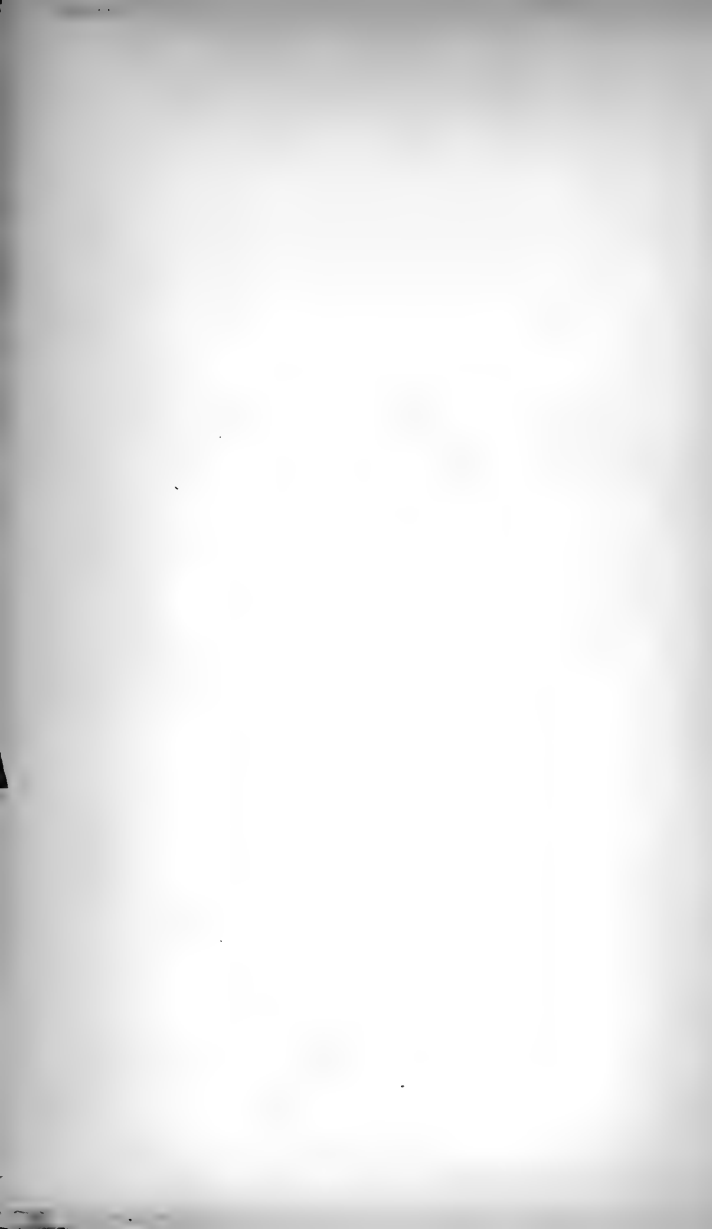
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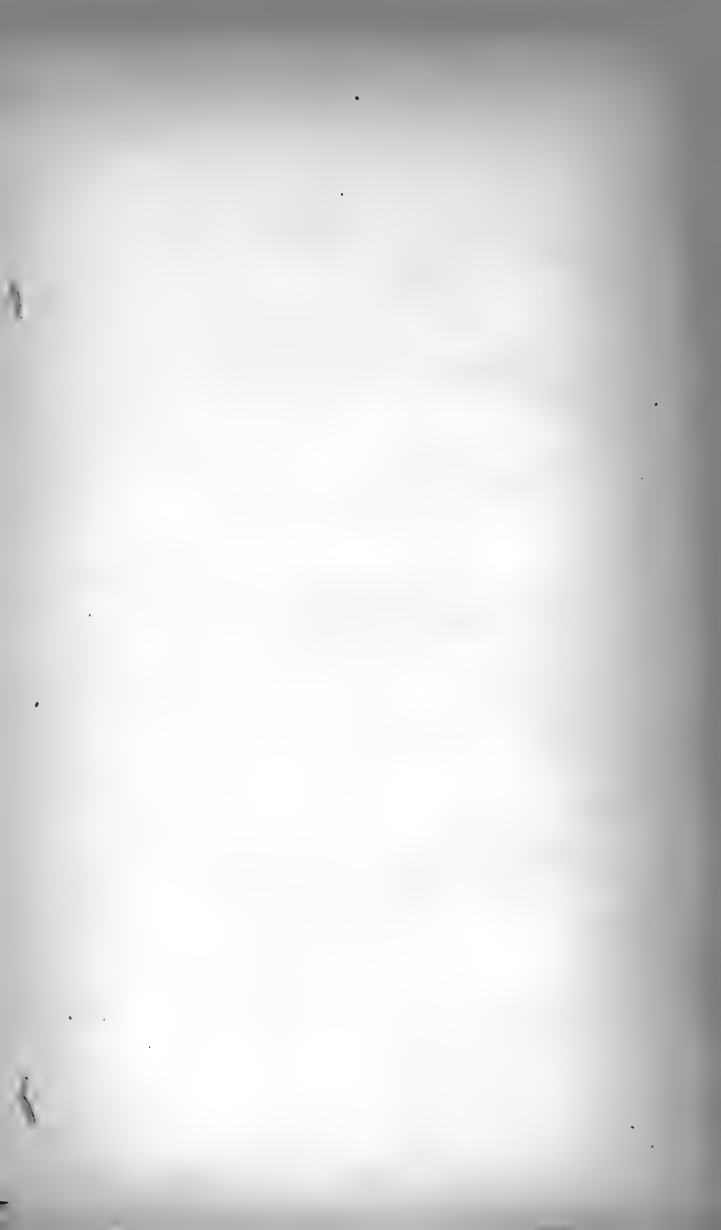
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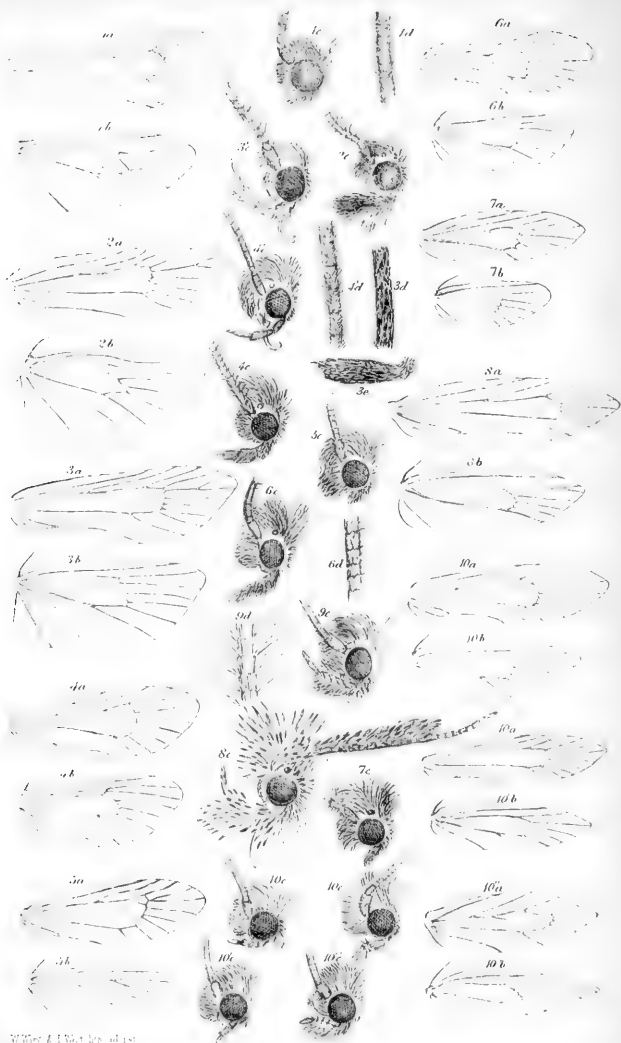
## PLATE I.

### FAMILY I. EXAPATIDÆ.

- GENUS 1. **Exapate.** Fig. 1 *a*, anterior wing of *Exapate gelatella*; 1 *b*, posterior wing; 1 *c*, head; 1 *d*, portion of antenna.
- GENUS 2. **Dasystoma.** Fig. 2 *a*, anterior wing of *Dasystoma Salicella*; 2 *b*, posterior wing; 2 *c*, head.
- GENUS 3. **Chimabacche.** Fig. 3 *a*, anterior wing of *Chimabacche Fagella*; 3 *b*, posterior wing; 3 *d*, portion of antenna; 3 *e*, palpus; 3' *c*, head of *Chimabacche Phryganella*.

### FAMILY II. TINEIDÆ.

- GENUS 1. **Talæporia.** Fig. 4 *a*, anterior wing of *Talæporia pseudobombycella*; 4 *b*, posterior wing; 4 *c*, head; 4' *c*, head of *Talæporia pubicornis*; 4' *d*, portion of antenna.
- GENUS 2. **Solenobia.** Fig. 5 *a*, anterior wing of *Solenobia inconspicuellæ*; 5 *b*, posterior wing; 5 *c*, head.
- GENUS 3. **Diplodoma.** Fig. 6 *a*, anterior wing of *Diplodoma marginipunctella*; 6 *b*, posterior wing; 6 *c*, head; 6 *d*, portion of antenna.
- GENUS 4. **Xysmatodoma.** Fig. 7 *a*, anterior wing of *Xysmatodoma melanella*; 7 *b*, posterior wing; 7 *c*, head.
- GENUS 5. **Ochsenheimeria.** Fig. 8 *a*, anterior wing of *Ochsenheimeria Birdella*; 8 *b*, posterior wing; 8 *c*, head.
- GENUS 6. **Euplocamus.** Fig. 9 *c*, head of *Euplocamus Boleti* ♀; 9 *d*, portion of antenna of ♂.
- GENUS 7. **Tinea.** Fig. 10 *a*, anterior wing of *Tinea Lapella*; 10 *b*, posterior wing; 10 *c*, head; 10' *a*, anterior wing of *Tinea biselliella*; 10' *b*, posterior wing; 10' *c*, head; 10'' *a*, anterior wing of *Tinea bistrigella*; 10'' *b*, posterior wing; 10'' *c*, head; 10''' *c*, head of *Tinea ochraceella*.







## PLATE II.

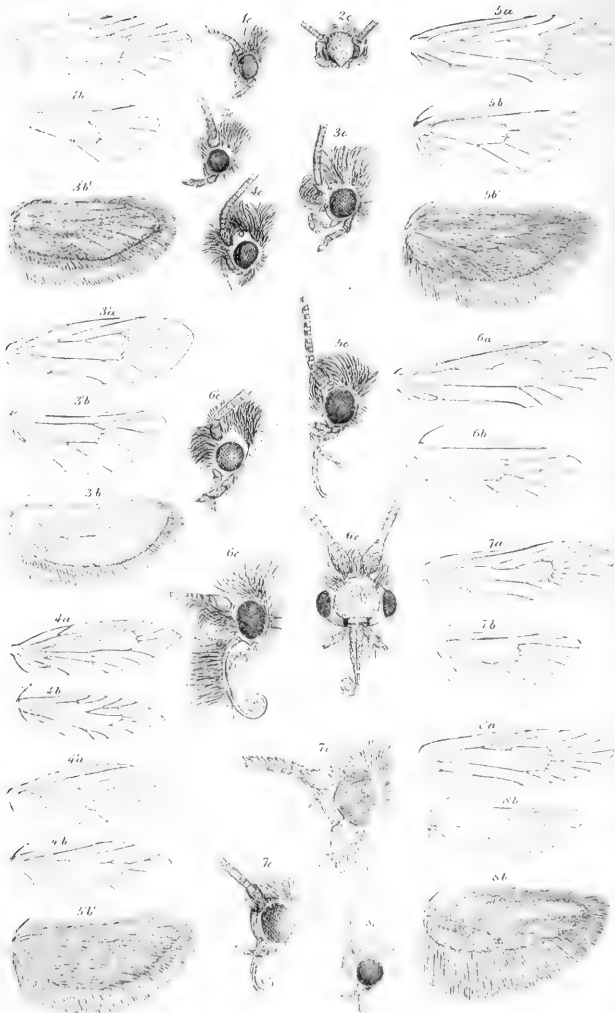
### FAMILY II. TINEIDÆ (continued).

- GENUS 8. **Lampronia**. Fig. 1 *c*, head of *Lampronia praelatella*; 1' *a*, anterior wing of *Lampronia quadripunctella*; 1' *b*, posterior wing.
- GENUS 9. **Lamprosetia**. Fig. 2 *c*, head of *Lamprosetia Verhuel-  
lella*.
- GENUS 10. **Incurvaria**. Fig. 3 *b'*, posterior wing (undennuded) of *Incurvaria muscalella*; 3 *c*, head of ♂; 3' *a*, anterior wing of *Incurvaria capitella*; 3' *b*, posterior wing; 3' *b'*, posterior wing (undennuded); 3' *c*, head.
- GENUS 11. **Micropteryx**. Fig. 4 *a*, anterior wing of *Micropteryx Allionella*; 4 *b*, posterior wing; 4 *c*, head; 4' *a*, anterior wing of *Micropteryx semipurpurella*; 4' *b*, posterior wing.
- GENUS 12. **Nemophora**. Fig. 5 *a*, anterior wing of *Nemophora Swammerdammella*; 5 *b*, posterior wing; 5 *b'*, posterior wing (undennuded); 5 *c*, head; 5' *b'*, posterior wing (undennuded) of *Nemophora pilella*.
- GENUS 13. **Adela**. Fig. 6 *a*, anterior wing of *Adela viridella*; 6 *b*, posterior wing; 6 *c*, head of ♂; 6' *c*, head of *Adela Fibulella*; 6" *c*, head of *Adela Degeerella* ♂.
- GENUS 14. **Nemotois**. Fig. 7 *a*, anterior wing of *Nemotois Scabiosellus*; 7 *b*, posterior wing; 7 *c*, head of ♂; 7' *c*, head of *Nemotois fasciellus*, ♀.

### FAMILY III. HYPONOMEUTIDÆ.

- GENUS 1. **Swammerdamia**. Fig. 8 *a*, anterior wing of *Swammerdamia cæsiella*; 8 *b*, posterior wing; 8 *b'*, posterior wing (undennuded); 8 *c*, head.









## PLATE III.

### FAMILY III. HYPONOMEUTIDÆ (continued).

GENUS 2. **Scythropia**. Fig. 1 *a*, anterior wing of *Scythropia Cratægella*; 1 *b*, posterior wing; 1 *c*, head.

GENUS 3. **Hyponomeuta**. Fig. 2 *a*, anterior wing of *Hyponomeuta Padellus*; 2 *b*, posterior wing; 2 *b'*, posterior wing (undenuded); 2' *c*, head of *Hyponomeuta cognatellus*.

GENUS 4. **Anesychia**. Fig. 3 *a*, anterior wing of *Anesychia funerella*; 3 *b*, posterior wing; 3 *c*, head.

GENUS 6. **Prays**. Fig. 4 *a*, anterior wing of *Prays Curtisellus*; 4 *b*, posterior wing; 4 *c*, head.

### FAMILY IV. PLUTELLIDÆ.

GENUS 1. **Eidophasia**. Fig. 5 *a*, anterior wing of *Eidophasia Messingiella*; 5 *b*, posterior wing; 5 *c*, head.

GENUS 2. **Plutella**. Fig. 6 *a*, anterior wing of *Plutella Crucifera-rum*; 6 *b*, posterior wing; 6 *c*, head; 6' *b*, posterior wing of *Plutella Dalella*; 6' *c*, palpus.

GENUS 3. **Cerostoma**. Fig. 7 *a*, anterior wing of *Cerostoma radiatella*; 7 *b*, posterior wing; 7 *c*, head; 7' *a*, anterior wing of *Cerostoma lucella*; 7'' *a*, anterior wing of *Cerostoma scabrella*; 7''' *a*, anterior wing of *Cerostoma nemorella*; 7''' *b*, posterior wing; 7''' *c*, head of *Cerostoma Xylostella*.

GENUS 4. **Theristis**. Fig. 8 *a*, anterior wing of *Theristis caudella*; 8 *b*, posterior wing; 8 *c*, head.

### FAMILY V. GELECHIDÆ.

GENUS 1. **Orthotælia**. Fig. 9 *c*, head of *Orthotælia Sparganella*.

GENUS 2. **Semioscopis**. Fig. 10 *a*, anterior wing of *Semioscopis Steinkellneriana*; 10 *b*, posterior wing; 10 *c*, palpus; 10' *c*, head of *Semioscopis Avellanella*.

GENUS 5. **Exæretia**. Fig. 11 *c*, head of *Exæretia Allisella*; 11 *d*, portion of antenna.

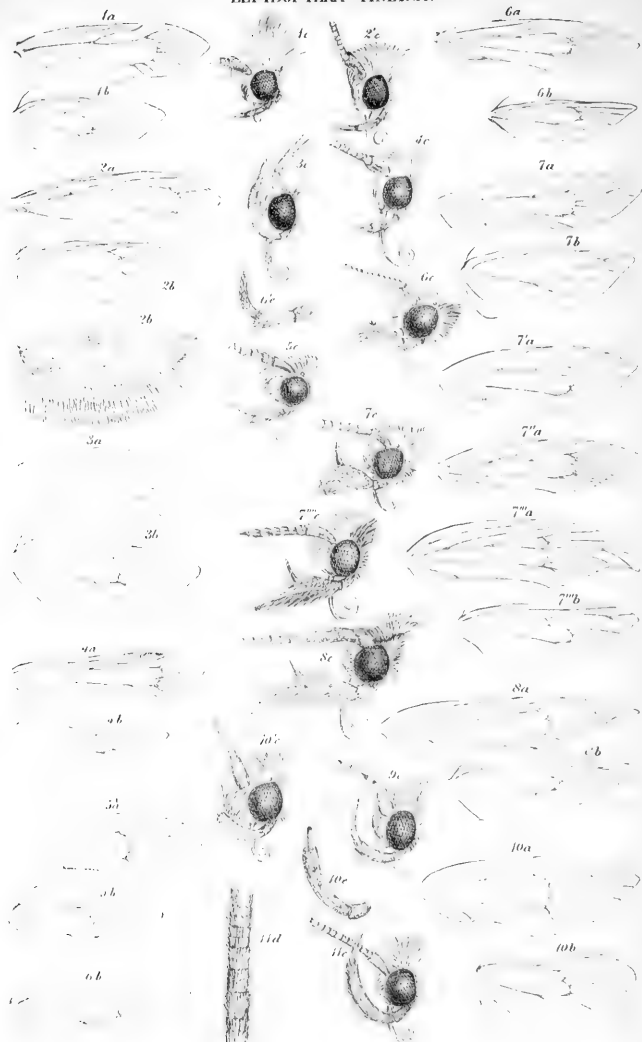






PLATE IV.

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FAMILY V. GELECHIDÆ (continued).

- GENUS 3. **Enicostoma.** Fig. 1 *a*, anterior wing of *Enicostoma lobella*; 1 *b*, posterior wing; 1 *c*, head.
- GENUS 4. **Phibalocera.** Fig. 2 *a*, anterior wing of *Phibalocera Quercana*; 2 *b*, posterior wing; 2 *c*, head.
- GENUS 6. **Depressaria.** Fig. 3 *a*, anterior wing of *Depressaria applana*; 3 *b*, posterior wing; 3 *c*, head.
- GENUS 7. **Psoricoptera.** Fig. 4 *c*, head of *Psoricoptera gibbosella*.
- GENUS 8. **Gelechia.** Fig. 5 *a*, anterior wing of *Gelechia rufescens*; 5 *b*, posterior wing; 5 *c*, head; 5' *a*, anterior wing of *Gelechia Populella*; 5' *b*, posterior wing; 5' *c*, head; 5'' *c*, head of *Gelechia tæniolella*; 5''' *c*, head of *Gelechia næviferella*; 5''' *a*, anterior wing of *Gelechia subocellea*; 5''' *b*, posterior wing; 5''' *c*, head.
- GENUS 9. **Parasia.** Fig. 6 *a*, anterior wing of *Parasia Carlinella*; 6 *b*, posterior wing; 6' *c*, head of *Parasia Lappella*.
- GENUS 10. **Cleodora.** Fig. 7 *a*, anterior wing of *Cleodora Cytisella*; 7 *b*, posterior wing; 7 *c*, head.
- GENUS 11. **Chelaria.** Fig. 8 *c*, head of *Chelaria Hübnerella*.
- GENUS 12. **Anarsia.** Fig. 9 *a*, anterior wing of *Anarsia Spartiella*; 9 *b*, posterior wing; 9 *c*, head of ♀; 9 *e*, palpus of ♂.
- GENUS 13. **Ypsolophus.** Fig. 10 *a*, anterior wing of *Ypsolophus marginellus*; 10 *b*, posterior wing; 10 *c*, head.
- GENUS 14. **Aplota.** Fig. 11 *c*, head of *Aplota palpella*.
- GENUS 15. **Nothris.** Fig. 12 *a*, anterior wing of *Nothris Verbasella*; 12 *b*, posterior wing; 12 *c*, head.



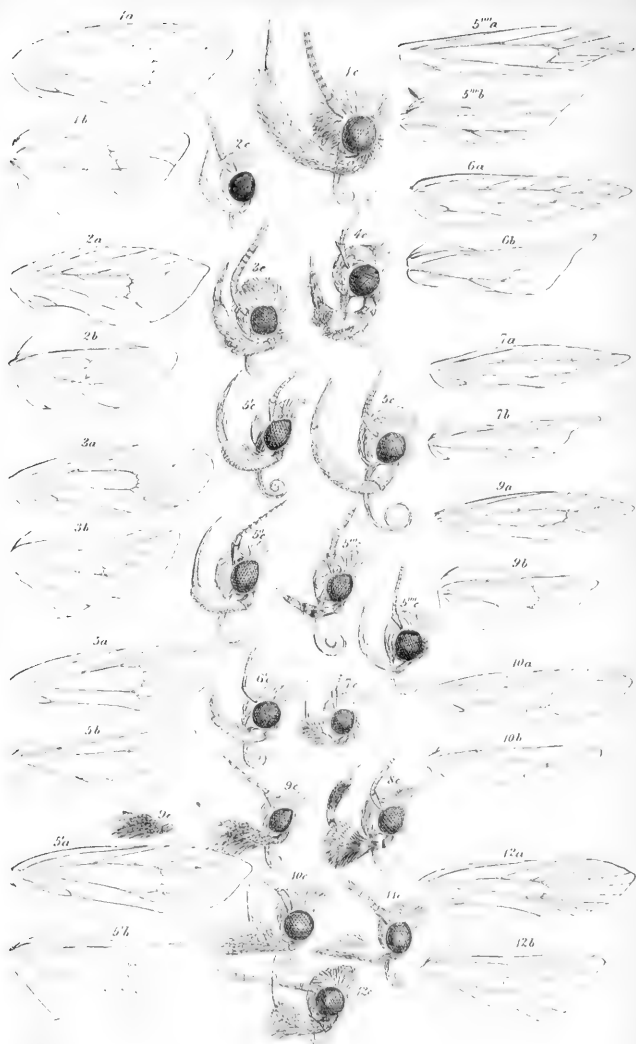






PLATE V.

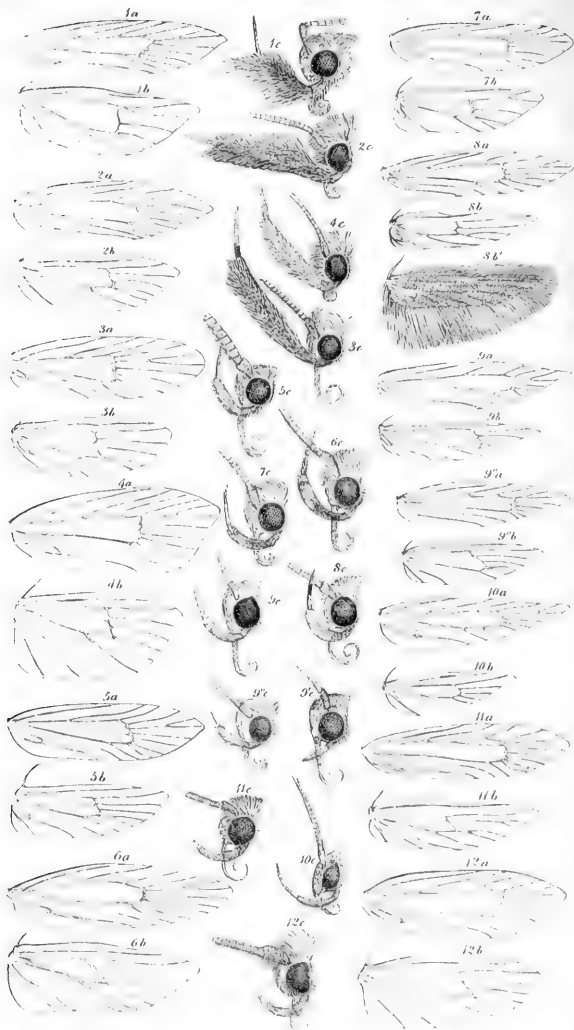
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FAMILY V. GELECHIDÆ (continued).

- GENUS 16. **Sophronia**. Fig. 1 *a*, anterior wing of *Sophronia parenthesella*; 1 *b*, posterior wing; 1 *c*, head.
- GENUS 17. **Pleurota**. Fig. 2 *a*, anterior wing of *Pleurota bicostella*; 2 *b*, posterior wing; 2 *c*, head.
- GENUS 18. **Harpella**. Fig. 3 *a*, anterior wing of *Harpella Geoffrella*; 3 *b*, posterior wing; 3 *c*, head.
- GENUS 19. **Hypercallia**. Fig. 4 *a*, anterior wing of *Hypercallia Christiernana*; 4 *b*, posterior wing; 4 *c*, head.
- GENUS 20. **Dasycera**. Fig. 5 *a*, anterior wing of *Dasycera sulphurella*; 5 *b*, posterior wing; 5 *c*, head.
- GENUS 21. **Æcophora**. Fig. 6 *a*, anterior wing of *Æcophora pseudospretella*; 6 *b*, posterior wing; 6 *c*, head.
- GENUS 22. **Ægoconia**. Fig. 7 *a*, anterior wing of *Ægoconia quadripuncta*; 7 *b*, posterior wing; 7 *c*, head.
- GENUS 23. **Endrosis**. Fig. 8 *a*, anterior wing of *Endrosis fenestrella*; 8 *b*, posterior wing; 8 *b'*, posterior wing (undenuded); 8 *c*, head.
- GENUS 24. **Butalis**. Fig. 9 *a*, anterior wing of *Butalis grandipennis*; 9 *b*, posterior wing; 9 *c*, head; 9' *c*, head of *Butalis torquatella*; 9'' *a*, anterior wing of *Butalis incongruella*; 9'' *b*, posterior wing; 9'' *c*, head.
- GENUS 25. **Pancalia**. Fig. 10 *a*, anterior wing of *Pancalia Leuwenhoekella*; 10 *b*, posterior wing; 10 *c*, head.

FAMILY VI. GLYPHIPTERYGIDÆ.

- GENUS 1. **Acrolepia**. Fig. 11 *a*, anterior wing of *Acrolepia graniella*; 11 *b*, posterior wing; 11 *c*, head.
- GENUS 2. **Röslerstammia**. Fig. 12 *a*, anterior wing of *Röslerstammia Erxlebella*; 12 *b*, posterior wing; 12 *c*, head.







## PLATE VI.

### FAMILY VI. GLYPHIPTERYGIDÆ (continued).

- GENUS 3. **Glyphipteryx**. Fig. 1 *a*, anterior wing of *Glyphipteryx fuscoviridella*; 1 *b*, posterior wing; 1' *c*, head of *Glyphipteryx Thrasonella*; 1' *d*, portion of antenna.
- GENUS 4. **Æchmia**. Fig. 2 *a*, anterior wing of *Æchmia dentella*; 2 *b*, posterior wing; 2 *c*, head.
- GENUS 5. **Perittia**. Fig. 3 *a*, anterior wing of *Perittia obscurepunctella*; 3 *b*, posterior wing; 3 *c*, head.
- GENUS 6. **Tinagma**. Fig. 4 *a*, anterior wing of *Tinagma sericiellum*; 4 *b*, posterior wing; 4 *c*, head.
- GENUS 7. **Douglasia**. Fig. 5 *a*, anterior wing of *Douglasia ocnerosstomella*; 5 *b*, posterior wing; 5 *c*, head.

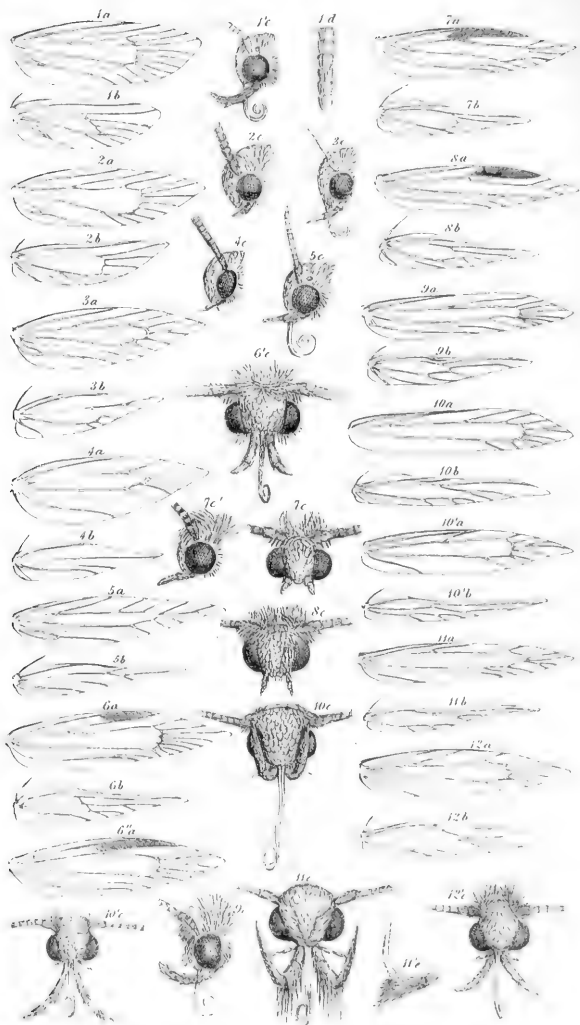
### FAMILY VII. ARGYRESTHIDÆ.

- GENUS 1. **Argyresthia**. Fig. 6 *a*, anterior wing of *Argyresthia nitidella*; 6 *b*, posterior wing; 6' *c*, head of *Argyresthia ephippella*; 6" *a*, anterior wing of *Argyresthia arceuthina*.
- GENUS 2. **Cedestis**. Fig. 7 *a*, anterior wing of *Cedestis farinatella*; 7 *b*, posterior wing; 7 *c*, head (front view); 7' *c*', head (side view).
- GENUS 3. **Ocnerosstoma**. Fig. 8 *a*, anterior wing of *Ocnerosstoma piniariella*; 8 *b*, posterior wing; 8 *c*, head.
- GENUS 4. **Zelleria**. Fig. 9 *a*, anterior wing of *Zelleria hepariella*; 9 *b*, posterior wing; 9 *c*, head.

### FAMILY VIII. GRACILARIIDÆ.

- GENUS 1. **Gracilaria**. Fig. 10 *a*, anterior wing of *Gracilaria stigmatella*; 10 *b*, posterior wing; 10 *c*, head; 10' *a*, anterior wing of *Gracilaria omissella*; 10' *b*, posterior wing; 10' *c*, head.
- GENUS 2. **Coriscium**. Fig. 11 *a*, anterior wing of *Coriscium Brongniardellum*; 11 *b*, posterior wing; 11 *c*, head; 11' *e*, palpus of *Coriscium sulphurellum*.
- GENUS 3. **Ornix**. Fig. 12 *a*, anterior wing of *Ornix Anglicella*; 12 *b*, posterior wing; 12' *c*, head of *Ornix Scoticella*.









## PLATE VII.

### FAMILY IX. COLEOPHORIDÆ.

GENUS 1. **Coleophora.** Fig. 1 *a*, anterior wing of *Coleophora anatipennella*; 1 *b*, posterior wing; 1' *c*, head of *Coleophora Fabriciella*; 1" *d*, portion of antenna of *Coleophora paripennella*; 1''' *d*, portion of antenna of *Coleophora ochrea*.

### FAMILY X. ELACHISTIDÆ.

GENUS 1. **Bedellia.** Fig. 2 *a*, anterior wing of *Bedellia somnulentella*; 2 *b*, posterior wing; 2 *c*, head.

GENUS 2. **Stathmopoda.** Fig. 3 *a*, anterior wing of *Stathmopoda pedella*; 3 *b*, posterior wing; 3 *c*, head; 3 *d*, portion of antenna.

GENUS 3. **Cosmopteryx.** Fig. 4 *a*, anterior wing of *Cosmopteryx Drurella*; 4 *b*, posterior wing; 4 *c*, head; 4 *h*, hind leg.

GENUS 4. **Batrachedra.** Fig. 5 *a*, anterior wing of *Batrachedra præangusta*; 5 *b*, posterior wing; 5 *c*, head.

GENUS 5. **Oinophila.** Fig. 6 *a*, anterior wing of *Oinophila V-flava*; 6 *b*, posterior wing; 6 *c*, head.

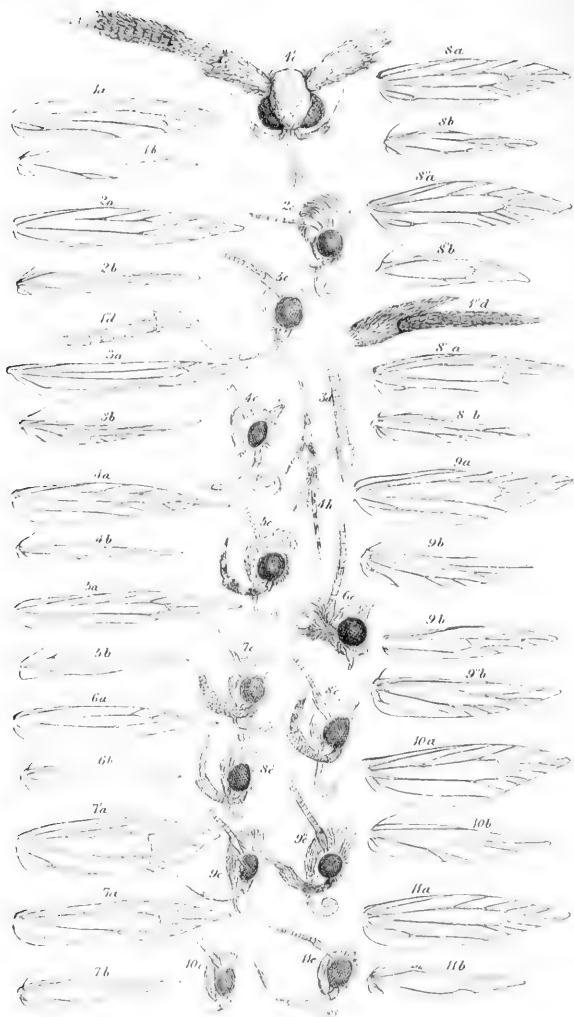
GENUS 6. **Chauliodus.** Fig. 7 *a*, anterior wing of *Chauliodus Chærophyllellus*; 7 *b*, posterior wing; 7 *c*, head; 7' *a*, anterior wing of *Chauliodus insecurellus*.

GENUS 7. **Laverna.** Fig. 8 *a*, anterior wing of *Laverna Staintoni*; 8 *b*, posterior wing; 8' *c*, head of *Laverna lacteella*; 8" *a*, anterior wing of *Laverna Epilobiella*; 8" *b*, posterior wing; 8''' *c*, head of *Laverna ochraceella*; 8''' *a*, anterior wing of *Laverna atra*; 8''' *b*, posterior wing.

GENUS 8. **Chrysoclista.** Fig. 9 *a*, anterior wing of *Chrysoclista Linneella*; 9 *b*, posterior wing; 9 *c*, head; 9' *b*, posterior wing of *Chrysoclista Schrankella*; 9" *b*, posterior wing of *Chrysoclista flavicaput*; 9" *c*, head.

GENUS 9. **Heliodines.** Fig. 10 *a*, anterior wing of *Heliodines Roesella*; 10 *b*, posterior wing; 10 *c*, head.

GENUS 10. **Anybia.** Fig. 11 *a*, anterior wing of *Anybia langiella*; 11 *b*, posterior wing; 11 *c*, head.







## PLATE VIII.

### FAMILY X. ELACHISTIDÆ (continued).

GENUS 11. **Asychna**. Fig. 1 *a*, anterior wing of *Asychna modestella*; 1 *b*, posterior wing; 1 *c*, head; 1' *a*, anterior wing of *Asychna æratella*; 1' *b*, posterior wing; 1' *c*, head; 1'' *c*, head of *Asychna terminella*.

GENUS 12. **Chrysocorys**. Fig. 2 *a*, anterior wing of *Chrysocorys festaliella*; 2 *b*, posterior wing; 2 *c*, head.

GENUS 13. **Elachista**. Fig. 3 *a*, anterior wing of *Elachista obscura*; 3 *b*, posterior wing; 3 *c*, head.

GENUS 14. **Tischeria**. Fig. 4 *a*, anterior wing of *Tischeria complanella*; 4 *b*, posterior wing; 4 *c*, head of ♂.

### FAMILY XI. LITHOCOLLETIDÆ.

GENUS 1. **Lithocolletis**. Fig. 5 *a*, anterior wing of *Lithocolletis Messaniella*; 5 *b*, posterior wing; 5 *c*, head.

### FAMILY XII. LYONETIDÆ.

GENUS 1. **Lyonetia**. Fig. 6 *a*, anterior wing of *Lyonetia Clerckella*; 6 *b*, posterior wing; 6 *c*, head (front view); 6 *c'*, head (side view).

GENUS 2. **Phyllocnistis**. Fig. 7 *a*, anterior wing of *Phyllocnistis suffusella*; 7 *b*, posterior wing; 7 *c*, head.

GENUS 3. **Cemiosstoma**. Fig. 8 *a*, anterior wing of *Cemiosstoma Laburnella*; 8 *b*, posterior wing; 8 *c*, head; 8' *a*, anterior wing of *Cemiosstoma scitella*; 8' *b*, posterior wing; 8' *c*, head.

GENUS 4. **Opostega**. Fig. 9 *a*, anterior wing of *Opostega salaciella*; 9 *b*, posterior wing; 9 *c*, head.

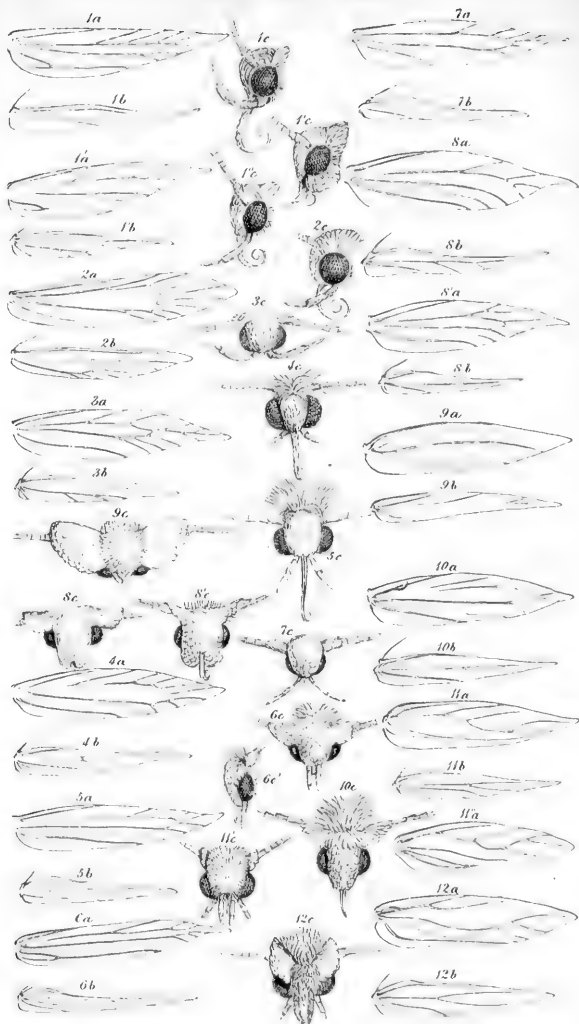
GENUS 5. **Bucculatrix**. Fig. 10 *a*, anterior wing of *Bucculatrix Cratægi*; 10 *b*, posterior wing; 10 *c*, head.

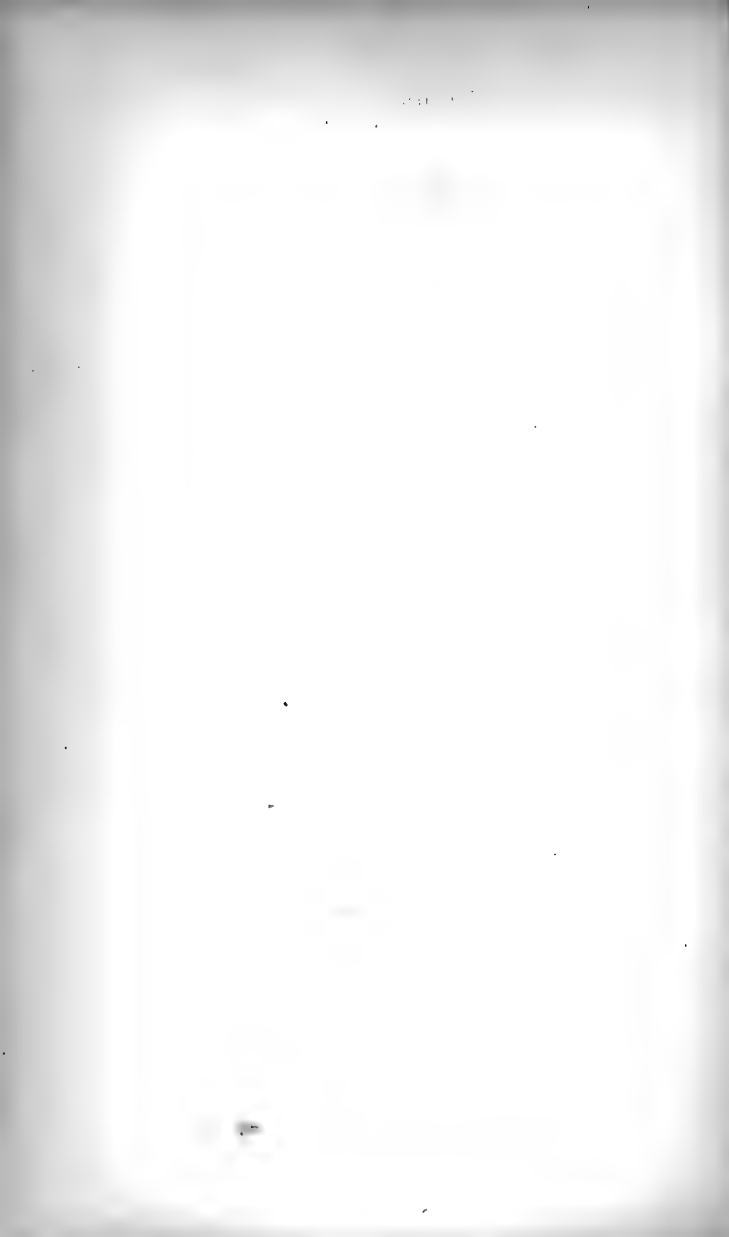
### FAMILY XIII. NEPTICULIDÆ.

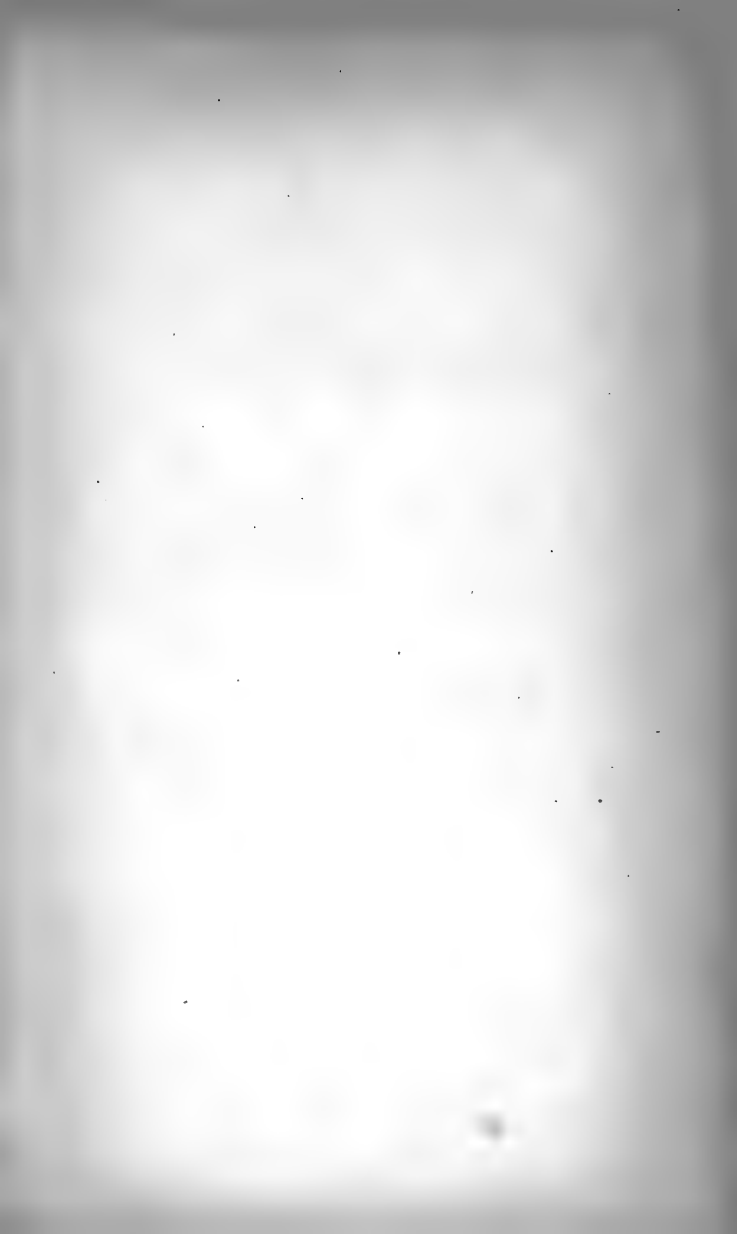
GENUS 1. **Nepticula**. Fig. 11 *a*, anterior wing of *Nepticula gratiosella*; 11 *b*, posterior wing; 11' *c*, head of *Nepticula aurella*; 11'' *a*, anterior wing of *Nepticula subbimaculella*.

GENUS 2. **Trifurcula**. Fig. 12 *a*, anterior wing of *Trifurcula imundella*; 12 *b*, posterior wing; 12 *c*, head.









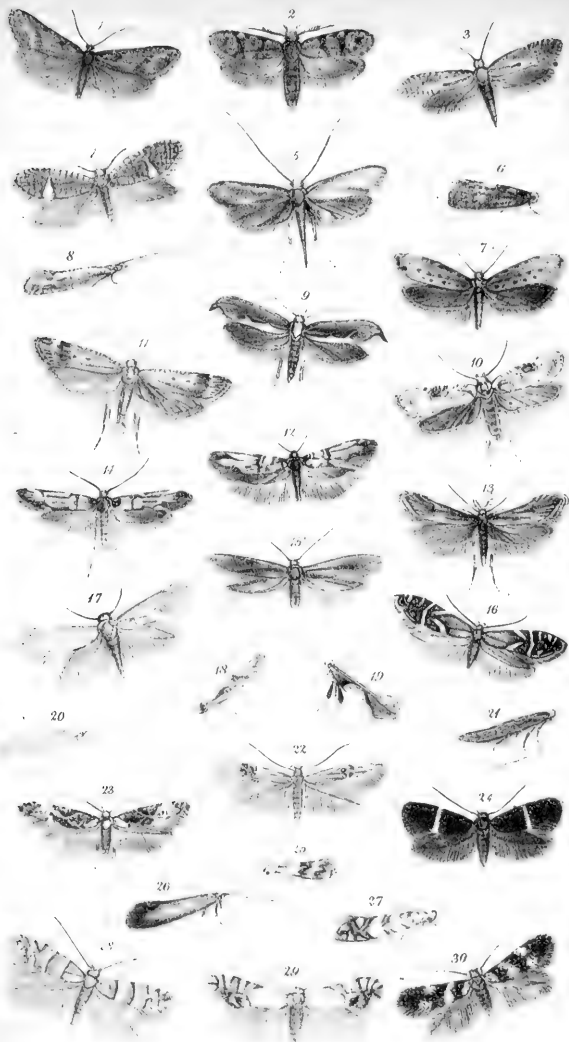
# PLATE IX.

Fig.

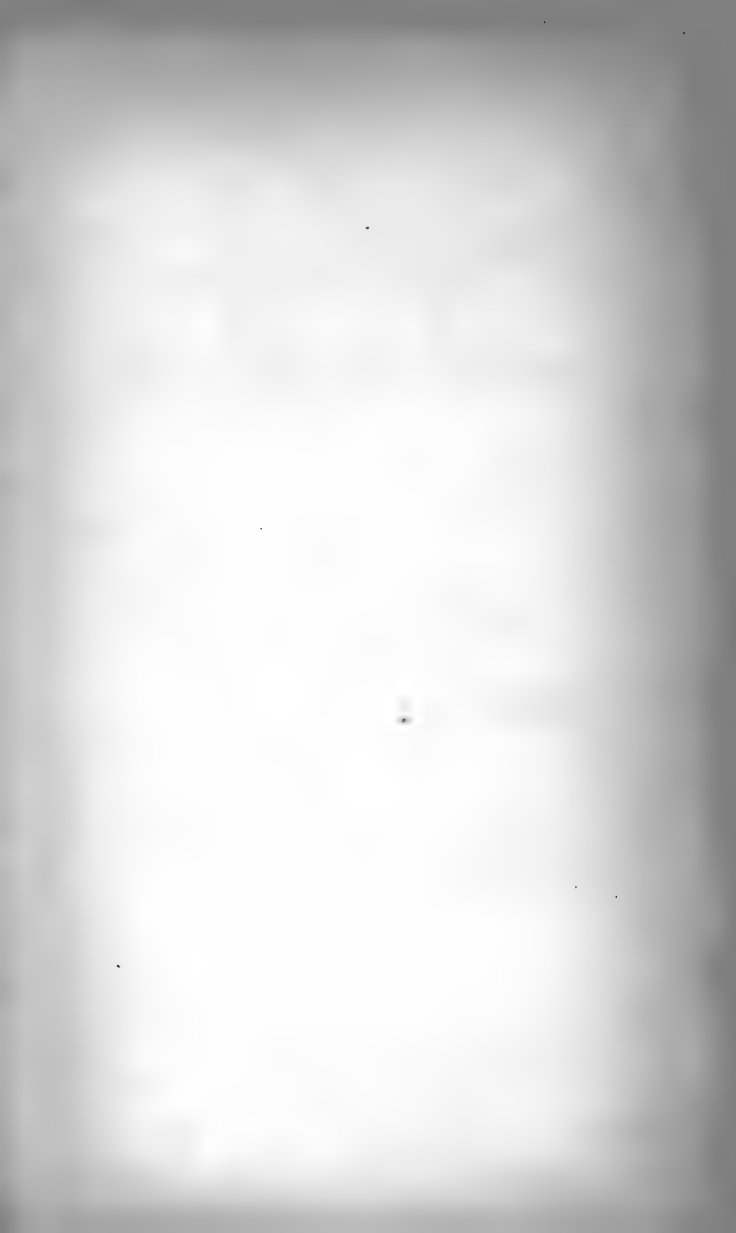
1. *Exapate gelatella*.
2. *Ochsenheimeria Birdella*.
3. *Tinea Lapella*.
4. *Micropteryx Salopiella*.
5. *Nemotois Scabiosellus*.
6. *Swammerdamia Pyrella*.
7. *Hyponomeuta vigintipunctatus*.
8. *Plutella Cruciferarum*.
9. *Cerostoma Xylostella*.
10. *Depressaria Alstr meriana*.
11. *Gelechia Malvella*.
12. *Gelechia Hermannella*.
13. *Sophronia parenthesella*.
14. *Ecophora grandis*.
15. *Butalis grandipennis*.

Fig.

16. *Glyphipteryx equitella*.
17. *Tinagma resplendellum*.
18. *Argyresthia nitidella*.
19. *Gracilaria Swederella*.
20. *Coleophora lineolea*.
21. *Bedellia somnulentella*.
22. *Cosmopteryx Lienigiella*.
23. *Laverna propinquella*.
24. *Elachista gangabella*.
25. *Elachista cerusella*.
26. *Tischeria marginella*.
27. *Lithocolletis sylvella*.
28. *Lithocolletis Stettinensis*.
29. *Cemiostoma scitella*.
30. *Nepticula sericopeza*.







## PLATE X.

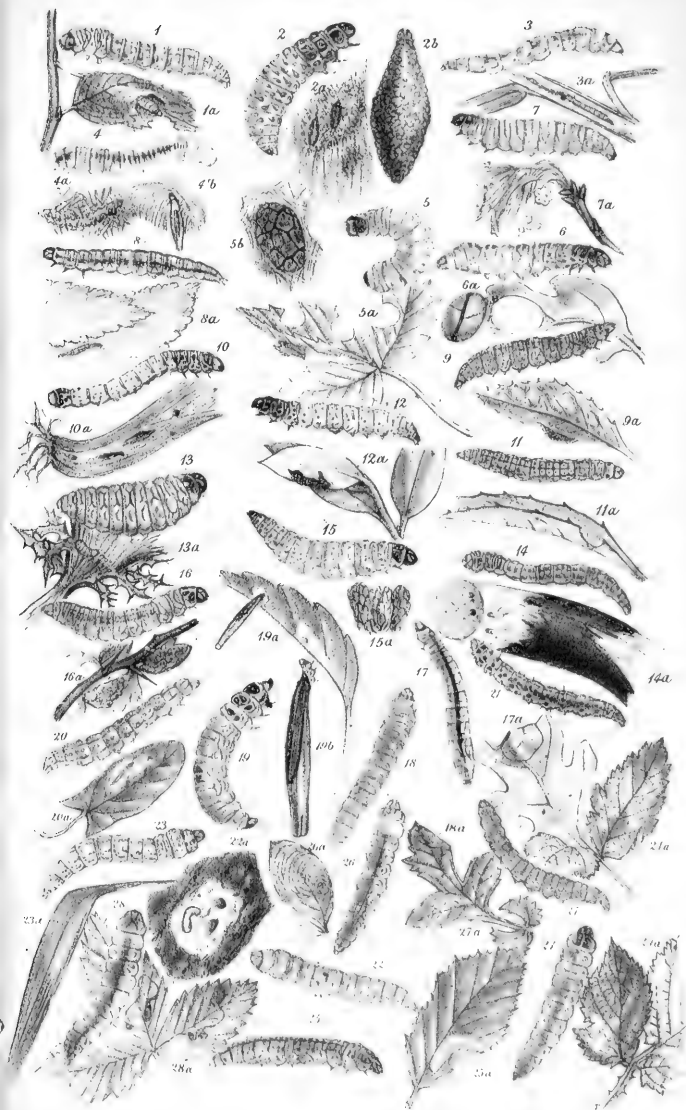
- Fig. 1, larva of *Chinabacche Fagella* ; 1 *a*, united birch-leaves, showing the larva between them.
- Fig. 2, larva of a *Solenobia* (the species is not known, no males having been bred) ; 2 *a*, the cases attached to lichen on a fence ; 2 *b*, the case, much magnified.
- Fig. 3, larva of *Ochsenheimeria Birdella* ; 3 *a*, section of a grass-stem, showing the larva burrowing down the centre.
- Fig. 4, larva of *Tinea biselliella* ; 4 *a*, gallery formed by the larva feeding among feathers ; 4' *b*, case of *Tinea pellationella* on a feather.
- Fig. 5, larva of *Lampronia prælatella* ; 5 *a*, leaf of wild strawberry eaten by the larva, with the case attached to the under-side ; 5 *b*, the case, much magnified.
- Fig. 6, larva of *Incurvaria pectinea* ; 6 *a*, the larva in its case, feeding on a fallen oak-leaf.
- Fig. 7, larva of *Incurvaria capitella* ; 7 *a*, a currant-shoot withering from the effect of a larva of *Incurvaria capitella* feeding in the stem.
- Fig. 8, larva of *Sicammerdamia pyrella* ; 8 *a*, the larva in its web, between united cherry-leaves.
- Fig. 9, larva of *Plutella porrectella* ; 9 *a*, the larva feeding on a leaf of *Hesperis matronalis*.
- Fig. 10, larva of *Orthotelia Sparganella* ; 10 *a*, stem of *Sparganium*, eaten by the larva.
- Fig. 11, larva of a *Depressaria*, which feeds on *Centaurea nigra* (the species is not known, the perfect insect not having been bred) ; 11 *a*, leaf of *Centaurea nigra*, contorted by the larva.
- Fig. 12, larva of *Gelechia pernigrella* ; 12 *a*, shoot of willow tenanted by the larva.
- Fig. 13, larva of *Parasia Carlinella* ; 13 *a*, section of seed-head of *Carlina vulgaris*, showing the larva feeding below the seeds.
- Fig. 14, larva of *Ecophora unitella* ; 14 *a*, piece of decayed wood burrowed by the larva.
- Fig. 15, larva of *Glyphipteryx equitella* ; 15 *a*, shoots of *Sedum acre*, the middle one bleached by the excavations of the larva.
- Fig. 16, larva of *Argyresthia nitidella* ; 16 *a*, shoots of hawthorn, eaten by the larva.
- Fig. 17, larva of *Gracilaria Swederella* ; 17 *a*, cone on an oak-leaf, formed by the larva.
- Fig. 18, larva of *Ornix Anglicella* ; 18 *a*, cone on hawthorn-leaf, formed by the larva.

[Continued.]



- Fig. 19, larva of *Coleophora troglodytella*; 19 a, leaf of *Eupatoria cannabinum* mined by the larva; 19 b, case, much magnified.
- Fig. 20, larva of *Bedellia somnulentella*; 20 a, leaf of *Convolvulus arvensis* mined by the larva.
- Fig. 21, larva of *Chauliodus Charophyllellus*; 21 a, piece of a leaf of *Anthriscus sylvestris* eaten half through by the larva.
- Fig. 22, larva of *Chrysoclista Linneella*; 23 a, piece of inner bark of the lime-tree burrowed by the larva.
- Fig. 23, larva of *Elachista cerusella*; 23 a, leaf of *Arundo Phragmites* mined by the larva.
- Fig. 24, larva of *Tischeria marginea*; 24 a, bramble-leaf mined by the larva.
- Fig. 25, larva of *Lithocolletis carpinicolella*; 25 a, leaf of hornbeam mined by the larva.
- Fig. 26, larva of *Cemiotoma Laburnella*; 26 a, mine of the larva in a laburnum-leaf.
- Fig. 27, adult larva of *Bucculatrix Cratagi*; 27 a, hawthorn-leaf eaten half through by the larva.
- Fig. 28, larva of a *Nepticula*, which feeds on *Potentilla fragariastrum* (the species is not known, the perfect insect not having been bred); 28 a, leaf of *Potentilla fragariastrum*, with the mine of the larva.







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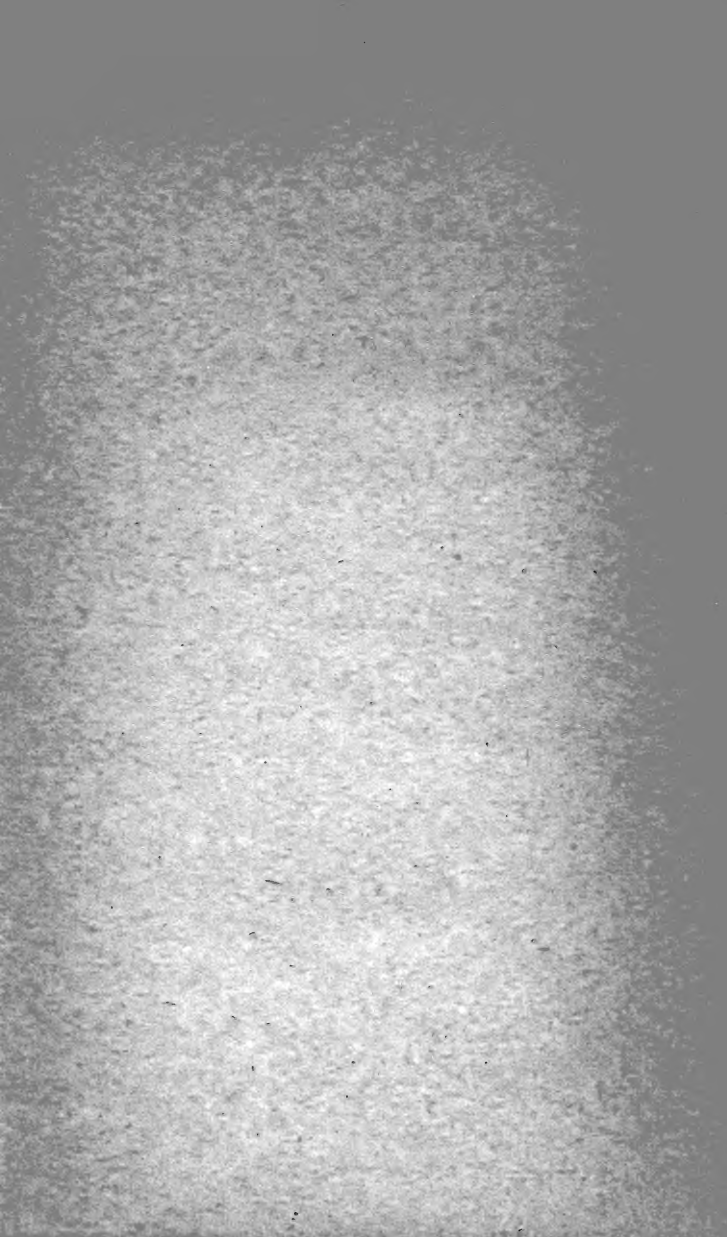
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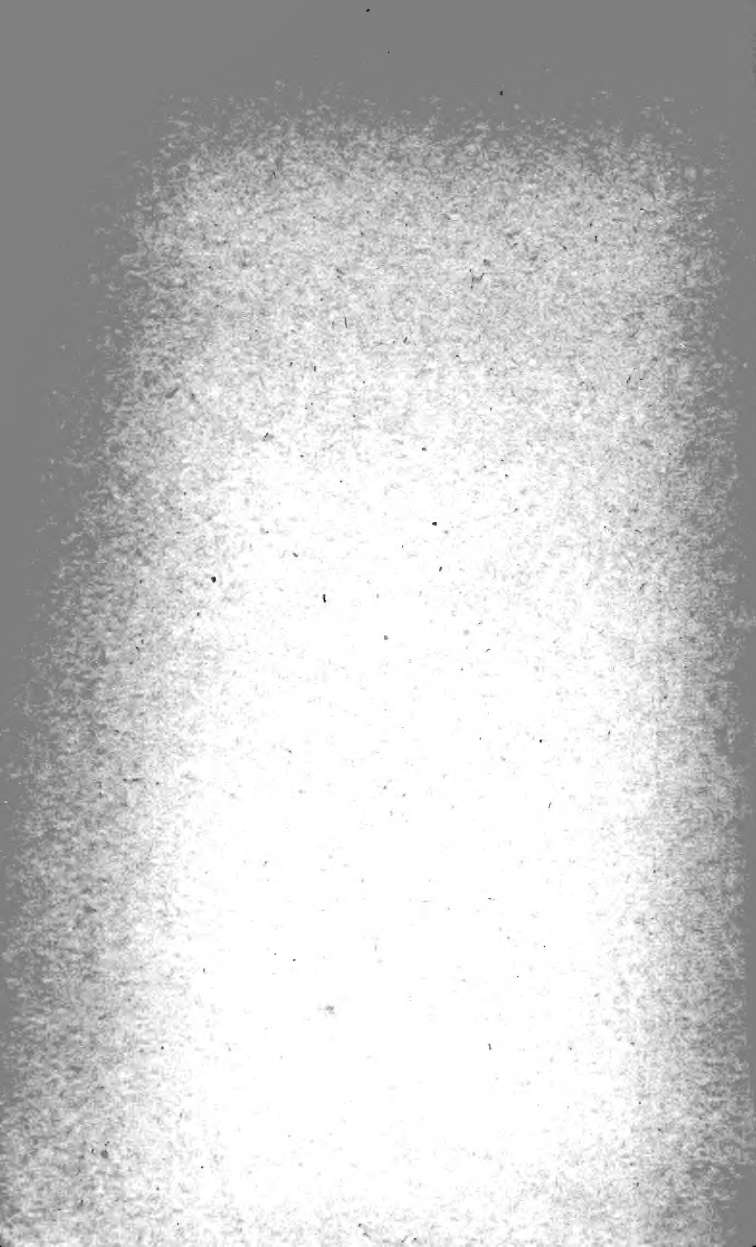
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